

Seekonk, Massachusetts

# Proposed Commercial Redevelopment

*July 2021*

## TRAFFIC IMPACT STUDY



**BETA**

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# Proposed Commercial Redevelopment

Seekonk, Massachusetts

## TRAFFIC IMPACT STUDY

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Prepared by: BETA GROUP, INC.

Prepared for: Mr. Christian Beau Akers  
c/o Tayeh Realty, LLC  
155 Fall River Avenue  
Seekonk, Massachusetts 02771

July 2021





July 9, 2021

Mr. Christian Beau Akers  
c/o Tayeh Realty, LLC  
155 Fall River Avenue  
Seekonk, Massachusetts 02771

**Re: Proposed Commercial Redevelopment  
Gasoline Station/Convenience Store  
155 Fall River Avenue (Route 114A)  
Seekonk, Massachusetts 02771**

Dear Mr. Akers:

BETA Group, Inc., in accordance with our scope of services, has completed a traffic impact study for a proposed commercial redevelopment project in the Town of Seekonk, Massachusetts. The site is located on the southwest corner of the intersection of Taunton Avenue with Fall River Avenue. The parcel is defined by Assessor's Plat 265, Map 12, Lots 266 & 269 which contains approximately 0.38 acres of fully developed land.

Based upon information provided by your office, and a review of the current site plan prepared by *Choubah Engineering Group, P.C.*, it is our understanding that the redevelopment project will include razing two existing commercial buildings to allow construction of a new 2,340 square foot convenience store and gasoline station. Access and egress to the new business will be provided from single driveways on Taunton Avenue (Route 44) and Fall River Avenue (Route 114A).

The study included herein, was conducted to determine the adequacy of the existing servicing roadways to accommodate anticipated traffic to be generated by the commercial redevelopment project. An analysis of potential impacts to the roadway capacity and safety has been completed and is discussed in the following report.

Very truly yours,  
BETA Group, Inc.

A handwritten signature in black ink, appearing to read "Paul J. Bannon", is written over a large, faint, stylized graphic of a leaf or petal.

Paul J. Bannon  
Associate

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## 1.0 INTRODUCTION

The objective of the following study is to assess the potential traffic impacts associated with a proposed commercial redevelopment project in the Town of Seekonk. The property is situated on a parcel of land on the southwestern corner of the intersection of Taunton Avenue (Route 44) with Fall River Avenue (Route 114A). Refer to the Figure 1, Project Vicinity Map, on the following page for the project location within the community.

The redevelopment proposal will consist of razing two existing commercial buildings currently utilized for retail businesses including a pawn shop and smoke shop to allow construction of a single 2,340 square foot building to accommodate a convenience store/gasoline station with 8 vehicle fueling positions. Parking will be available for 8 vehicles. Access and egress to the site will be provided from single driveways on Taunton Avenue and Fall River Avenue.

The study summarized herein focused on both traffic flow efficiency and safety along Taunton Avenue (Route 44) and Fall River Avenue (Route 114A) in the immediate vicinity of the subject property, and specifically at the modified site driveways. The impacts associated with the site related traffic have been defined and evaluated in accordance with standard traffic engineering guidelines and procedures.

The traffic engineering study completed for this project included the following:

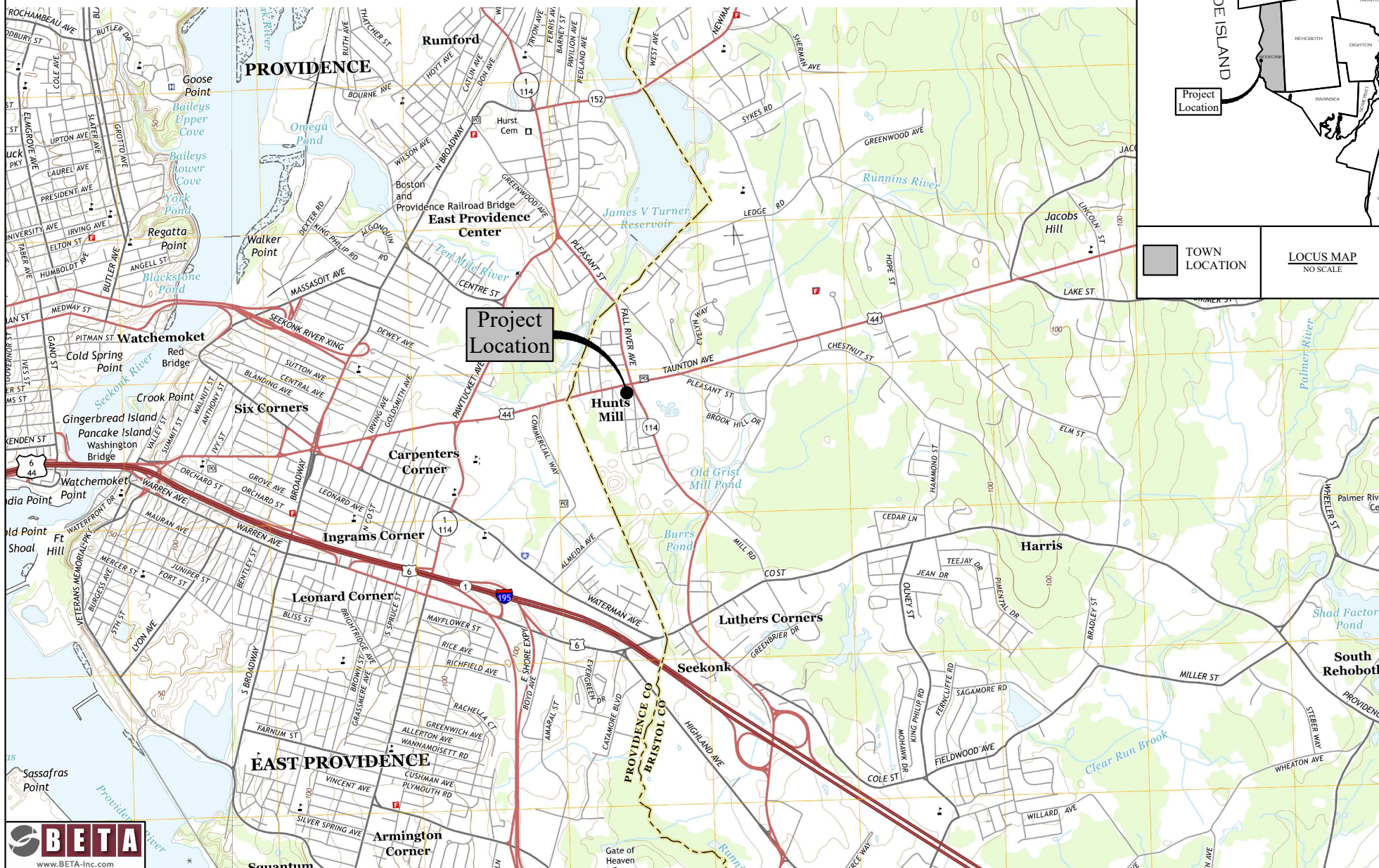
- A traffic counting program to define the existing traffic patterns and operation characteristics along the servicing roadways. The data collection included a manual Turning Movement Count (TMC) at the intersection of Taunton Avenue (Route 44) and Fall River Avenue (Route 114A) and review of record traffic data available from the Massachusetts Department of Transportation (MassDOT) and Rhode Island Department of Transportation (RIDOT).
- An inventory of the physical roadway characteristics of Taunton Avenue and Fall River Avenue in the project area to determine the adequacy of the existing roadway geometric features in reference to safety and operations.
- An analysis of crash records obtained from the MassDOT to define potential safety issues along the immediate servicing roadways adjacent to the site.
- An estimate of future traffic volumes for the proposed commercial redevelopment was calculated using data from the "Trip Generation" Manual, an informational report published by the Institute of Transportation Engineers (ITE).
- Evaluation and analysis of the traffic safety and operations for existing and future traffic conditions and development of recommendations if determined necessary, to maintain safe and adequate access to the redeveloped commercial property.



# Proposed Commercial Redevelopment

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## Figure 1 - Project Vicinity Map



## 2.0 PROJECT AREA

As noted in the previous section, the subject property is situated on the southwest corner of the intersection of Taunton Avenue (Route 44) with Fall River Avenue (Route 114A). The site is fully developed with two commercial structures and a paved parking lot for a pawn shop and a smoke shop. Figure 2 on the following page depicts the general project area, and the boundary lines of the subject property.

Land use in the project area is predominantly commercial in nature along Taunton Avenue (Route 44) including at the intersection with Fall River Avenue (Route 114A) with medium density residential properties off intersecting side streets. Immediately abutting the property to the north across Route 44 is a *Baycoast Bank* branch. To the south and west across Ipswich Street are residential properties. To the east across Fall River Avenue is the *Tasca Ford* car dealership. Further east and west into Rhode Island along Route 44, properties contain small to large scale commercial buildings, restaurants, retail stores, professional offices, and car dealerships. Further north and south along Route 114A are medium density residential properties.

Taunton Avenue and Fall River Avenue will serve as the primary access routes to the redeveloped property. Based upon the operating characteristics along the roadways adjacent to the site, and the estimated volume and type of traffic associated with the commercial redevelopment, a study impact area was defined for the project. The limits of our analysis focused on Taunton Avenue (Route 44) and Fall River Avenue (Route 114A) in the immediate site vicinity specifically including their intersection and the site driveway intersections.

## 3.0 EXISTING CONDITIONS

### 3.1 ROADWAYS

#### Taunton Avenue (Route 44)

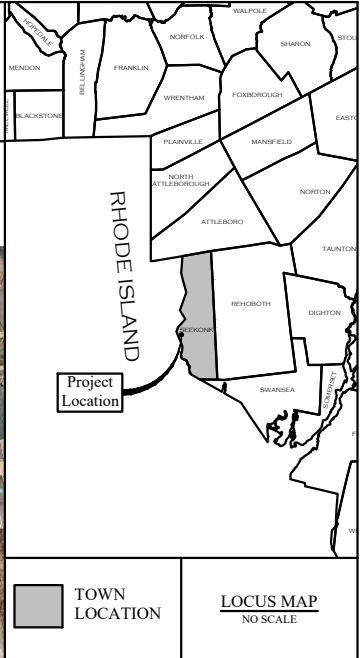
Taunton Avenue (Route 44) is an east/west urban arterial running through multiple communities including Seekonk to the west and Taunton to the east. Taunton Avenue provides immediate local access to abutting properties but also links to higher order facilities including Interstate 195 to the west. In the project area, Taunton Avenue is approximately 46 feet wide consisting of two 11-foot travel lanes and a 1-foot shoulder





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Figure 2 - Project Area Map



in each direction as depicted on the aerial looking easterly to the intersection with the subject property on the right. The pavement surface can be classified as being in fair condition with visible block cracking, longitudinal cracking, and minor rutting. The speed limit is posted at 35 mph in the project area. Bituminous concrete with granite curbing is provided on both sides of Taunton Avenue. Cobra-head light fixtures are located on utility poles at each intersecting side street for nighttime illumination.

#### Fall River Avenue (Route 114A)

Fall River Avenue (Route 114A) is a north/south urban minor arterial between the Rhode Island state line to the north and Highland Avenue (US Route 6) to the south. Fall River Avenue provides immediate local access to abutting properties but also links to higher order facilities including Interstate 195 and Route 6 to the south.

Fall River Avenue is a variable width roadway that generally provides one travel lane and a delineated shoulder in each direction that widens on the approach to the intersection with Taunton Avenue to provide two lanes. Along the property frontage, Fall River Avenue varies in width but is generally 42 feet wide consisting of two 11-foot northbound travel lanes and one 18-foot southbound travel lane with 1-foot shoulder in each direction as depicted on the adjacent aerial looking south. The pavement surface can be classified as being in fair condition along the property frontage and in good condition just south of the subject site as the section of Fall River Avenue between Hull Street and County Street was recently reconstructed with new pavement surface and pavement markings.



There was no posted speed limit found in the project area and was assumed at 35 mph due to the observed travel speeds and commercial nature of the area. Along the property frontage, granite curbing is provided on both sides of the road with bituminous concrete sidewalk on the westerly side only. In addition, cobra-head light fixtures are located sporadically along the westerly side of the corridor for nighttime illumination.

### **3.2 INTERSECTIONS**

#### Taunton Avenue (Route 44) at Fall River Avenue (Route 114A)

Taunton Avenue (Route 44) intersects Fall River Avenue (Route 114A) to form a four-way, signalized junction. The Taunton Avenue eastbound and westbound approaches each provide a shared left turn/through lane and a shared through/right turn lane. The Fall River Avenue northbound approach

provides two lanes, an undelineated left turn lane and a shared thru/right turn lane. It is recommended that the left lane be properly marked and signed as a dedicated left turn lane as the downstream side of the intersection provides only a single lane and cannot accommodate two northbound through lanes. It was regularly observed where drivers used the left lane to go north, resulting in vehicle conflicts on the downstream side of the intersection. The Fall River Avenue southbound approach provides a left turn lane and a shared through/right turn lane. The adjacent photograph depicts the typical characteristics of the intersection looking northeast along Fall River Avenue.



The traffic signal system appears to be in good working condition. The layout of the equipment consists of a combination of span and pedestal mounted signal heads with in-road loop vehicle detection including emergency vehicle pre-emption system. In addition, pedestrian accommodations are provided, including curb ramps, marked crosswalks, which are faded, pedestrian signal heads, and pedestal mounted pedestrian signal heads with pushbuttons on all legs of the intersection. The curb ramps appear to meet ADA standards, though the pushbuttons are not ADA compliant.

The intersection was determined to operate in a fully actuated mode under two phases. Taunton Avenue eastbound and westbound concurrent movements are serviced under Phase 1. Fall River Avenue northbound and southbound concurrent movements are serviced under the second phase.

### 3.3 TRAFFIC FLOW DATA

Existing traffic flow characteristics for this area were developed from a traffic counting program completed by BETA and review of record data available from MassDOT and RIDOT. The data collection included a Manual Turning Movement Count (TMC) at the signalized intersection of Taunton Avenue (Route 44) with Fall River Avenue (Route 114A) during the weekday morning and afternoon peak periods between 7 to 8 AM, and 4 to 6 PM, respectively, in June 2021. In addition, record Automatic Recorder (ATR) counts along Taunton Avenue and Fall River Avenue in the vicinity of their intersection were obtained from MassDOT that was collected in April 2017. Record data from the RIDOT on Route 44 at the state line was also reviewed for conformance between agencies.

It is important to note that although all COVID-19-related restrictions have been lifted in Massachusetts and neighboring Rhode Island since the end of May 2021, the traffic data specifically collected as part of this study may not be fully representative of typical daily traffic conditions experienced along both

Taunton Avenue and Fall River Avenue, specifically during the morning peak that has not returned to pre-COVID conditions. As a result, the June 2021 TMC data was compared to the record 2012, 2017 and 2021 ATR data to determine the potential variation in traffic volumes along Taunton Avenue and Fall River Avenue. Based on the comparison of the recent BETA count and record ATR data, the record traffic volume data was found to have higher overall existing daily traffic volumes along Taunton Avenue and Fall River Avenue. Thus, the existing traffic data collected by BETA was adjusted higher by ten percent to be conservative representing existing base traffic conditions. For future volumes estimates, a conservative annual growth rate of 1% was utilized for a background traffic growth even though the current rate of growth in the community is less than 1% per year and record daily traffic on these roadways has remained relatively constant over the last decade.

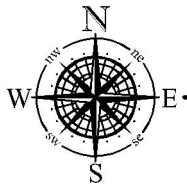
Based upon the adjusted turning movement count it was determined that Taunton Avenue along the site frontage services approximately 1,195 vehicles during the weekday morning peak hour with approximately 430 vehicles eastbound and 765 vehicles westbound. During the same time period, Fall River Avenue was found to service 850 vehicles with 465 vehicles northbound and 385 vehicles southbound.

During the weekday afternoon peak hour, Taunton Avenue serviced 1760 vehicles with approximately 885 vehicles eastbound and 875 vehicles westbound. During the same time period, Fall River Avenue was found to service 1,185 vehicles with 595 vehicles northbound and 560 vehicles southbound. The weekday morning and afternoon peak hours typically occur between 7:30 to 8:30 AM and 4:30 to 5:30 PM, respectively. Figure 3 on the following page depicts the daily peak hour turning movement volumes at the study intersection.

## 4.0 SAFETY ANALYSIS

To determine if there are any limiting factors affecting safety relating to access to the proposed commercial project, the physical characteristics of Taunton Avenue and Fall River Avenue in the project area, specifically at the site driveway locations were investigated. These limiting factors would potentially include horizontal or vertical alignment changes or roadside obstructions that limit sight distances for vehicles traveling along the road or entering the road from a side street or driveway location. In this instance, the sight distance standard is necessary to permit turning vehicles to safely enter and exit the site driveways.

The horizontal and vertical alignment of Taunton Avenue (Route 44) in the project area can be described as relatively straight and level. Based upon the existing roadway geometry as described, the available sight distances at the proposed driveway location on Taunton Avenue are greater than 500 feet through the signalized intersection with Fall River Avenue to the east and over 500 feet to the west. These values are greater than the 250-foot minimum stopping sight distance required according to AASHTO design standards for the posted speed limit of 35 mph and are sufficient for speeds in excess of 50 mph. It should be noted that speeds are highly variable due to the controlled Taunton Avenue signalized junction with Fall River Avenue, where vehicles are turning off or onto Taunton Avenue at a low speed or slowing to the stop line at the traffic signal.

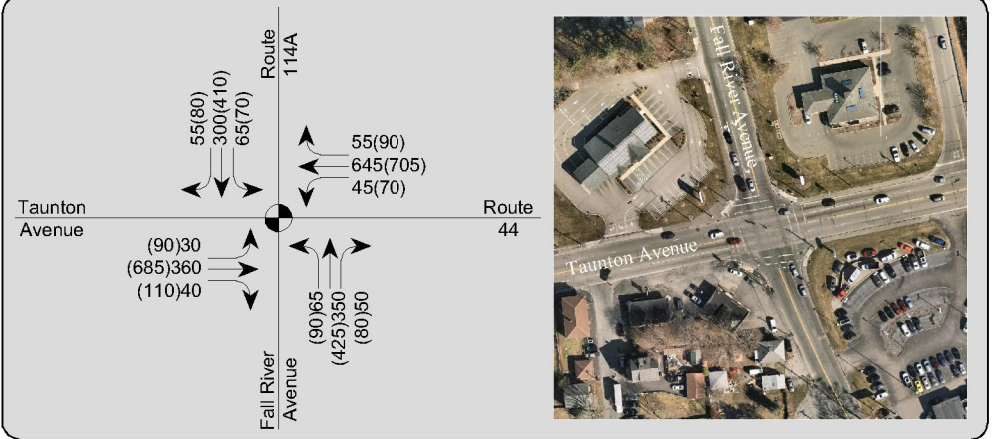


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## Figure 3 - Existing Traffic Volumes



### 1 TAUNTON AVENUE (ROUTE 44)/FALL RIVER AVENUE (ROUTE 114A)



#### LEGEND:

- TURN LANE
- XXX AM PEAK VOLUMES (7:30 TO 8:30)
- (XXX) PM PEAK VOLUMES (4:30 TO 5:30)
- 1 STUDY INTERSECTION
- TRAFFIC SIGNAL

The vertical and horizontal alignment of Fall River Avenue (Route 114A) in the project area can be described as relatively level and straight along the property frontage with a gradual curve south of the subject site. Based upon the existing roadway geometry as described, the available sight distances at the proposed driveway location on Fall River Avenue are greater than 500 feet through the signalized intersection with Fall River Avenue to the north and over 500 feet to the south. These values are greater than the 250-foot minimum stopping sight distance required according to AASHTO design standards for the assumed speed limit of 35 mph. It should be noted that speeds are highly variable due to the controlled Fall River Avenue signalized junction with Taunton Avenue, where vehicles are turning off or onto Fall River Avenue at a low speed or slowing to the stop line at the traffic signal.

As a result of the preliminary evaluation of the existing roadway geometry and physical features, it does not appear that any significant physical roadway safety deficiencies exist within the defined study area. Also, as part of our analysis, a review of crash statistics was completed. Data was reviewed from the MassDOT for the latest recorded full three-year period from January 2016 to December 2018 at the intersection of Taunton Avenue with Fall River Avenue to determine if the study intersection experienced a high frequency or pattern of crashes.

A total of 50 crashes (avg. 17 per year) occurred at the signalized intersection of Taunton Avenue with Fall River Avenue over the three-year study period, with fourteen involving injuries. Summarizing the data, 29 of the crashes were angle collisions, 15 were rear-end crashes, 5 were side-swipe (same direction) collisions, and one was a side swipe (opposite direction) collision. The majority of the angle collisions can be attributed to motorists not yielding the right-of-way during the permitted left turn phase on both Taunton Avenue and Fall River Avenue approaches and a few can be attributed to running a red light. The rear-end collisions are typical of signalized junctions due to the numerous starting and stopping movements required for the signal change intervals. The side-swipe collisions were attributed to vehicles changing lanes due to left turning vehicles. It is important to note that the intersection Taunton Avenue (Route 44) with Fall River Avenue (Route 114A) is listed as a Highway Safety Improvement Program (HSIP) eligible cluster under MassDOT. The program's goal is to reduce traffic fatalities and serious injuries on all public roads, including non-State-owned roads.

Based upon the historical crashes from the MassDOT, and a review of existing roadway geometry and operations, roadway or traffic related safety enhancements could be investigated by the state to improve safety at the signalized intersection of Taunton Avenue (Route 44) with Fall River Avenue (Route 114A). MassDOT could review the following safety enhancements as part of the Highway Safety Improvement Program :

1. The clearance intervals to determine if they require adjustment in an effort to reduce the number of rear-end collisions.
2. Addition of signal head backplates with reflectorized yellow strip to enhance traffic signal visibility and mitigate red lighting running.
3. Addition of a "Left Turn Yield on Green" sign on each approach of the intersection to emphasize the need for left turning vehicles to yield to through traffic during the permitted left turn phase.

4. Addition of intersection lane control signs including supplemental lane control pavement markings on both the Fall River Avenue northbound and southbound approaches to the intersection to properly guide vehicles through the intersection, therefore potentially mitigating side-swipe collisions.

## 5.0 IMPACT ANALYSIS

### 5.1 TRIP GENERATION

To determine the traffic impact of a proposed development, estimates of anticipated traffic to be generated by a particular land use must be calculated. As previously discussed, the redevelopment proposal consists of razing two existing structures to allow construction of a single 2,340 square foot building to accommodate a convenience store/gasoline station with eight (8) vehicle fueling positions. Access and egress will be provided from a single driveway each on Taunton Avenue and Fall River Avenue. Figure 4 on the following page depicts the site layout and access plan, prepared by *Choubah Engineering Group*.

For this site, projected traffic volumes for the commercial project were based on use of trip generation factors. These factors are taken from the “Trip Generation” manual, an informational report published by the Institute of Transportation Engineers (ITE), a national professional organization for traffic and transportation engineers. The data provided in the ITE report are based on extensive traffic studies for various types of land uses (residential, commercial, industrial, etc.). This data has been found to be very reliable and provides a sound basis for estimating future trips to new developments. For the proposed commercial redevelopment project, Land Use Code 945 Gasoline/Service Station with Convenience Market was reviewed for applicability in developing an estimate of site related vehicle trips. The appropriate worksheets from the manual are included in the Appendix along with the trip estimate calculations. Table 1 summarizes the estimate trip volumes calculated for this project.

**TABLE 1 – Trip Generation Estimate**

	Description	Enter	Exit	Total
<u>AM Peak Hour</u>				
ITE Land Use Code 945	Gasoline/Service Station with Convenience Market	50	50	100
<u>PM Peak Hour</u>				
ITE Land Use Code 945	Gasoline/Service Station with Convenience Market	55	55	110

It should be noted that a trip is defined as a one-way vehicle movement, therefore driving to and from the site, for example is equivalent to two trips. In addition, for this type of service-oriented use, it is estimated that between 40% and 60% of trips generated by the proposed convenience market/gas



station will not be new to the servicing roadways. The ITE manual provides information on what is referred to as “pass-by” trips, or those trips associated with the site that are already on the servicing roadways and turn into and out of a business and continue to their destination. Therefore, these pass-by vehicles would not be new or “added” to the adjacent servicing roadway but would be diverted vehicles in to and out of the site driveways and continue on to their destination. However, to be conservative, no reduction for pass-by trips were considered in our analysis.

## 5.2 FUTURE TRAFFIC CONDITIONS

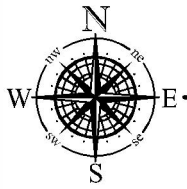
In order to properly assess the impacts of a development, future traffic conditions of area roadways should be estimated for the period when the development is constructed and fully occupied. Typically, the expansion of base traffic is calculated when a project is to be constructed over an extended period (+3 to 5 years). In all instances, area growth that may affect capacity results should be considered. For this project, a conservative annual growth rate of 1.0 percent was utilized for the future background traffic growth based on the Regional Transportation Plan, dated July 16, 2019, prepared by the Southeast Regional Planning & Economic Development District (SRPEDD) for arterial roads, though the town has seen an annual growth rate of less than 1%. This rate was applied to the existing volumes to establish a Future 2024 Build traffic condition on the servicing roadways. The Future 2024 Build condition included traffic generated by the new commercial development. Figure 5 on the following page depicts the estimated future traffic volumes at the study intersections. Site distribution figures are also provided in the Appendix.

In developing the intersection volumes to be analyzed under build conditions, a directional distribution of the site traffic was estimated. The distribution was based on current traffic patterns at the intersection of Taunton Avenue with Fall River Avenue.

## 5.3 OPERATION ANALYSIS

The key to any traffic impact analysis is the evaluation of roadway operations during peak traffic periods on the servicing roadway system. This situation would occur when the site-generated traffic, combined with the traffic volumes on the main roadway, result in the highest one-hour volume serviced along a roadway segment, or through an intersection. Review of record traffic data found that the weekday AM and PM peak hours would represent this worst-case combination of site-generated traffic with the servicing roadway peak traffic period.

The Highway Capacity Manual methodologies provide the most accurate means of evaluating traffic capacity and delays for roadways and intersections. The results of these procedures are expressed in terms of Level of Service (LOS). Level of Service is a qualitative measure of traffic flow efficiency based on anticipated vehicle delays. For example, LOS “A” represents the best condition with little or no delay, while LOS “F” indicates that the roadway/intersection is at full capacity resulting in extended vehicle delays and potential queuing. Table 2 outlines the Level of Service delay criteria presented in the Highway Capacity Manual for signalized and unsignalized intersections.

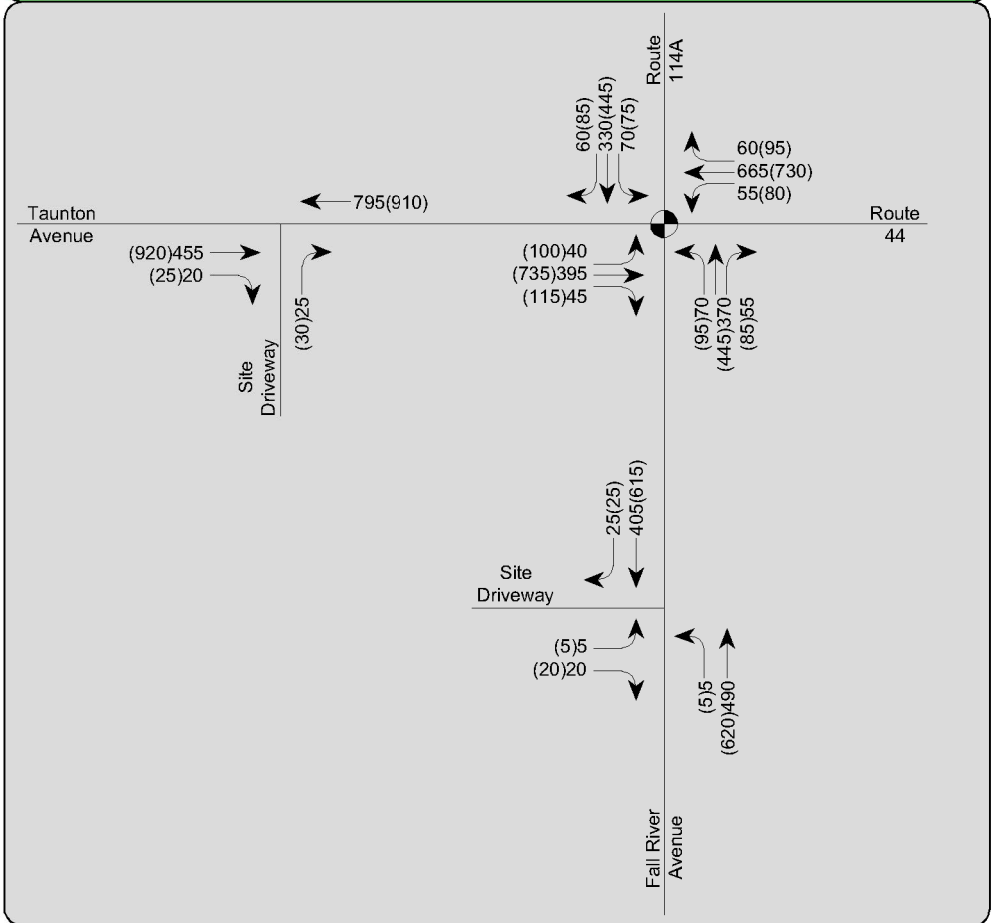


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## Figure 5 - Future Traffic Volumes



1/2/3 TAUNTON AVE. (ROUTE 44)/FALL RIVER AVE. (ROUTE 114A)/SITE DRIVEWAYS



### LEGEND:

- TURN LANE
- XXX AM PEAK VOLUMES (7:30 TO 8:30)
- (XXX) PM PEAK VOLUMES (4:30 TO 5:30)
- 1 STUDY INTERSECTION
- TRAFFIC SIGNAL

TABLE 2 – Highway Capacity Manual Criteria

Level of Service	Unsignalized Delay Per Vehicle (sec)	Signalized Delay Per Vehicle (sec)
A	<10	<10
B	>10 and <15	>10 and <20
C	>15 and <25	>20 and <35
D	>25 and <35	>35 and <55
E	>35 and <50	>55 and <80
F	>50	>80

The intersections of Taunton Avenue (Route 44) with Fall River Avenue (Route 114A) and with the site driveway and Fall River Avenue (Route 114A) with the site driveway were analyzed for the weekday morning and afternoon peak hours. The capacity analysis worksheets are included in the Appendix and Tables 3 and 4 below summarize the results of the Existing and Future Build conditions analyses at the study intersections.

As can be seen in Table 3 below, the signalized junction of Taunton (Route 44) with Fall River Avenue (Route 114A) currently operates overall at a good Level of Service (LOS) B with the critical movements experiencing LOS C or better during the daily morning and afternoon peak periods.

TABLE 3 – Level of Service Summary (Existing Conditions)

Location / Movement	2021 EXISTING CONDITIONS							
	AM Peak Hour				PM Peak Hour			
	LOS	Delay	95 <sup>th</sup> % Queue Length (veh.)	v/c	LOS	Delay	95 <sup>th</sup> % Queue Length (veh.)	v/c
<b>Taunton Avenue (Route 44) at Fall River Avenue (Route 114A) (S)</b>								
Taunton Avenue EB	B	11.0	4	0.38	B	17.8	9	0.75
Taunton Avenue WB	B	13.8	7	0.62	B	15.8	8	0.68
Fall River Avenue NB Left	B	13.4	2	0.23	C	26.1	3	0.50
Fall River Avenue NB Thru/Right	B	17.0	8	0.63	C	25.2	11	0.77
Fall River Avenue SB Left	B	14.2	2	0.26	C	22.7	2	0.40
Fall River Avenue SB Thru/Right	B	15.2	7	0.56	C	23.5	11	0.74
<b>OVERALL</b>	<b>B</b>	<b>14.1</b>	<b>-</b>	<b>-</b>	<b>B</b>	<b>19.8</b>	<b>-</b>	<b>-</b>

(S) – Signalized

(U) – Unsignalized

Table 4 on the following page presents the estimated future conditions at the study intersections where the analysis found that the estimated increase in traffic during the peak periods resulting from the proposed site redevelopment project, combined with the base traffic growth along the servicing roadways will not adversely impact overall traffic operations along both Taunton Avenue (Route 44) and

Fall River Avenue (Route 114A), specifically at the defined study intersections reviewed for this project. The signalized intersection of Taunton Avenue (Route 44) with Fall River Avenue (Route 114A) will continue to operate overall at a good LOS B and LOS C during the daily morning and afternoon peak periods, respectively, with all critical movements operating at LOS D or better.

The proposed unsignalized intersections of Taunton Avenue with the site driveway, which has been recommended to be restricted to right turn in/out only, and Fall River Avenue with the site driveway, which will be full access, will both operate efficiently with critical movements experiencing minor delays of fewer than 15 seconds, representing Levels of Service (LOS) B or better during the daily peak hours of traffic. These delays will result in typically one vehicle queued on either site driveway waiting to turn onto the main roadway, yielding efficient operations and no driveway congestion.

**TABLE 4 – Level of Service Summary (Build Conditions)**

Location / Movement	2024 FUTURE BUILD CONDITIONS							
	AM Peak Hour				PM Peak Hour			
	LOS	Delay	95 <sup>th</sup> % Queue Length (veh.)	v/c	LOS	Delay	95 <sup>th</sup> % Queue Length (veh.)	v/c
<b><i>Taunton Avenue (Route 44) at Fall River Avenue (Route 114A) (S)</i></b>								
Taunton Avenue EB	B	11.9	4	0.44	C	22.1	12	0.83
Taunton Avenue WB	B	14.9	7	0.66	B	18.1	9	0.75
Fall River Avenue NB Left	B	14.4	2	0.27	D	40.2	4	0.65
Fall River Avenue NB Thru/Right	B	17.9	8	0.66	C	27.8	13	0.80
Fall River Avenue SB Left	B	15.3	2	0.30	C	28.7	3	0.50
Fall River Avenue SB Thru/Right	B	16.3	7	0.61	C	27.3	13	0.80
<b>OVERALL</b>	<b>B</b>	<b>15.1</b>	<b>-</b>	<b>-</b>	<b>C</b>	<b>23.5</b>	<b>-</b>	<b>-</b>
<b><i>Taunton Avenue (Route 44) at Site Driveway (U)</i></b>								
Site Driveway NB Left	A	9.9	1	0.04	B	12.3	1	0.06
<b><i>Fall River Avenue (Route 114A) at Site Driveway (U)</i></b>								
Fall River Avenue NB Left	A	8.3	1	0.01	A	9.0	1	0.01
Site Driveway EB Left	B	11.9	1	0.05	B	14.9	1	0.07

(S) – Signalized

(U) – Unsignalized

## 6.0 CONCLUSIONS AND RECOMMENDATIONS

In summary, the study has shown that the proposed commercial redevelopment project access and site circulation have been designed to provide a level of traffic safety and efficiency on the servicing roadway system and within the site. The safety of the proposed access driveway on Fall River Avenue was reviewed for geometry and sight distances. The proposed driveway intersection was determined to

provide sufficient sight distances in accordance with AASHTO criteria for visibility and decision making of drivers attempting to enter/exit main street traffic from the proposed driveway.

In reference to safety, as previously noted, MassDOT could review the lane configurations including signing and striping for the Fall River Avenue approaches to the intersection. The southbound approach provides delineation including left turn arrows within a distance of 100 feet from the stop bar, though the left turn lane is added over 600 feet from the intersection resulting in drivers using the wrong lane. An advanced lane use sign and pavement markings should be added to avoid confusion and lane shifts that occur when drivers realize they are in the wrong lane to make the desired movement. The northbound approach is less informative where no instruction for lane use is provided even though the downstream exit from the intersection is a single lane. This regularly results in northbound drivers in the left lane intending to go north to slow, speed up or swerve to access the single lane.

The findings of the operational analysis determined that the estimated increase in traffic during the peak periods resulting from the proposed commercial redevelopment project, will have a minor effect on overall traffic operations along Taunton Avenue and Fall River Avenue (Route 114A) in the project area, particularly during the daily morning and afternoon peak hours when the site and adjacent roadway service their greatest daily volumes. As noted, for improved operations and safety it is recommended that the Taunton Avenue driveway be limited to a right turn in/out configuration due to its proximity to the intersection that would result in left turn conflicts with the average Taunton Avenue eastbound approach queue. Left turning drivers from the site would be able to safely access Taunton Avenue westbound via the traffic signal and not interfere with Taunton Avenue traffic flow at the major junction.

Therefore, based upon the data collected on the servicing roadways, the analysis completed as part of this study, along with the access design and other recommendations proposed, the commercial redevelopment project was determined to have adequate and safe access to a public street, and will not have an adverse impact on public safety and welfare in the study area.

# APPENDIX

- 
- A. Traffic Volume Data
  - B. Traffic Crash Data
  - C. Trip Generation
  - D. Operational Analysis

# APPENDIX A – Traffic Volume Data

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## **Intersection Turning Movement Count**

Taunton Avenue (Route 44) at Fall River Avenue (Route 114A)

**A**

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**Intersection Turning Movement Count**

Taunton Avenue (Route 44) at Fall River Avenue (Route 114A)

Taunton Avenue (Route 44) at Fall River Avenue (Route 114A)

# BETA Group, Inc.

701 George Washington Highway  
Lincoln, Rhode Island, 02865  
P:401.333.2382

Project: Proposed Commercial Redevelopment  
Town/City: Seekonk, MA  
Location: Taunton Ave @ Fall River Ave  
Weather: Sunny 70's

File Name : 7667 Taunton Ave @ Fall River Ave  
Site Code : 00766701  
Start Date : 6/16/2021  
Page No : 1

## Groups Printed- Passenger Vehicles - Heavy Vehicles

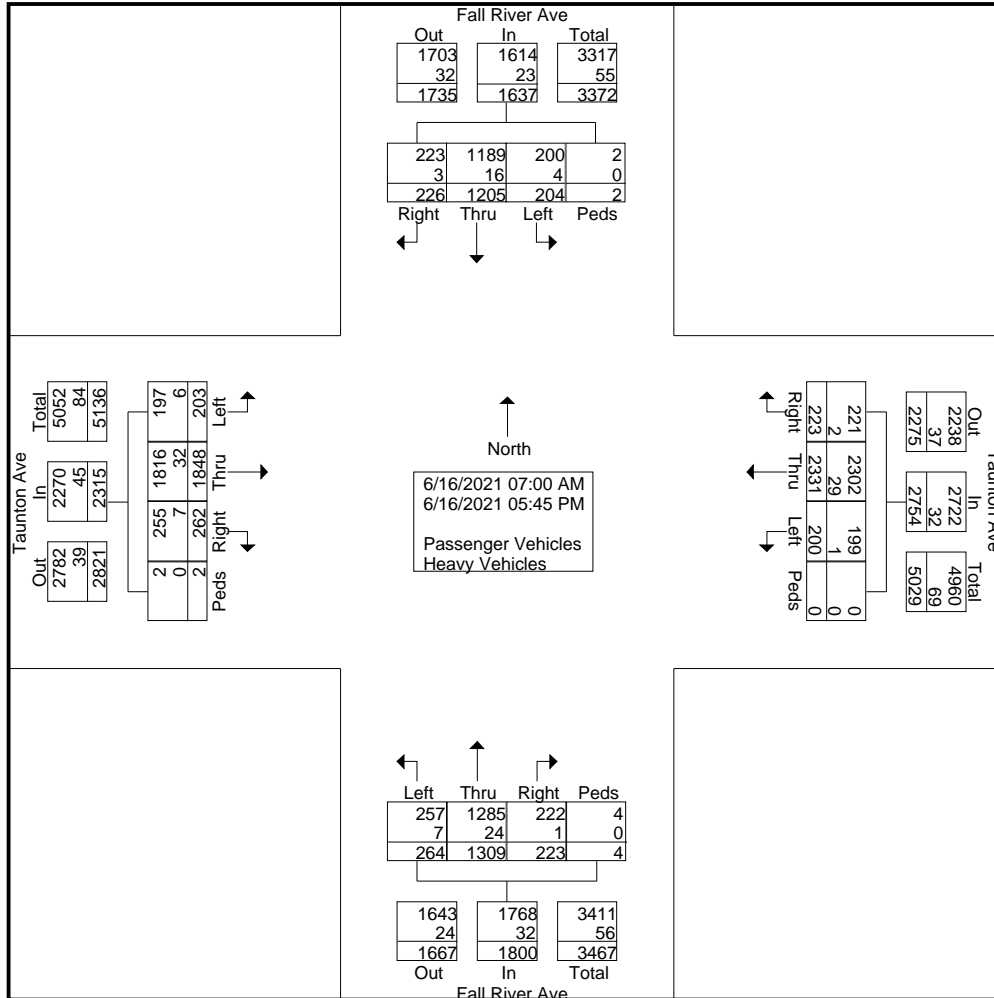
	Fall River Ave Southbound				Taunton Ave Westbound				Fall River Ave Northbound				Taunton Ave Eastbound				Int. Total
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
07:00 AM	17	58	10	1	3	104	5	0	13	83	15	0	10	85	4	0	408
07:15 AM	11	60	14	0	11	133	10	0	11	61	15	0	10	86	5	0	427
07:30 AM	4	58	12	0	12	150	12	0	13	79	17	0	12	89	6	0	464
07:45 AM	17	85	11	0	9	171	12	0	8	91	10	0	8	66	9	0	497
Total	49	261	47	1	35	558	39	0	45	314	57	0	40	326	24	0	1796
08:00 AM	10	54	16	1	15	139	2	0	11	75	18	0	6	76	6	0	429
08:15 AM	17	73	13	0	12	126	13	0	10	69	11	0	10	92	5	0	451
08:30 AM	15	61	6	0	12	129	9	0	18	59	7	0	10	92	7	0	425
08:45 AM	8	47	11	0	10	123	17	0	19	48	21	0	15	70	10	0	399
Total	50	235	46	1	49	517	41	0	58	251	57	0	41	330	28	0	1704
*** BREAK ***																	
04:00 PM	13	107	17	0	17	129	18	0	10	86	12	0	20	149	21	0	599
04:15 PM	16	93	13	0	16	139	13	0	18	104	18	0	24	169	21	1	645
04:30 PM	21	91	13	0	16	170	16	0	16	104	22	1	27	148	17	0	662
04:45 PM	15	85	17	0	26	153	15	0	14	96	20	3	18	159	16	0	637
Total	65	376	60	0	75	591	62	0	58	390	72	4	89	625	75	1	2543
05:00 PM	17	102	15	0	20	178	15	0	21	78	19	0	31	144	23	0	663
05:15 PM	16	93	10	0	18	160	14	0	18	95	20	0	22	136	21	0	623
05:30 PM	12	59	14	0	14	165	17	0	9	90	19	0	20	149	18	1	587
05:45 PM	17	79	12	0	12	162	12	0	14	91	20	0	19	138	14	0	590
Total	62	333	51	0	64	665	58	0	62	354	78	0	92	567	76	1	2463
Grand Total	226	1205	204	2	223	2331	200	0	223	1309	264	4	262	1848	203	2	8506
Apprch %	13.8	73.6	12.5	0.1	8.1	84.6	7.3	0	12.4	72.7	14.7	0.2	11.3	79.8	8.8	0.1	
Total %	2.7	14.2	2.4	0	2.6	27.4	2.4	0	2.6	15.4	3.1	0	3.1	21.7	2.4	0	
Passenger Vehicles	223	1189	200	2	221	2302	199	0	222	1285	257	4	255	1816	197	2	8374
% Passenger Vehicles	98.7	98.7	98	100	99.1	98.8	99.5	0	99.6	98.2	97.3	100	97.3	98.3	97	100	98.4
Heavy Vehicles	3	16	4	0	2	29	1	0	1	24	7	0	7	32	6	0	132
% Heavy Vehicles	1.3	1.3	2	0	0.9	1.2	0.5	0	0.4	1.8	2.7	0	2.7	1.7	3	0	1.6

# BETA Group, Inc.

701 George Washington Highway  
Lincoln, Rhode Island, 02865  
P:401.333.2382

Project: Proposed Commercial Redevelopment  
Town/City: Seekonk, MA  
Location: Taunton Ave @ Fall River Ave  
Weather: Sunny 70's

File Name : 7667 Taunton Ave @ Fall River Ave  
Site Code : 00766701  
Start Date : 6/16/2021  
Page No : 2

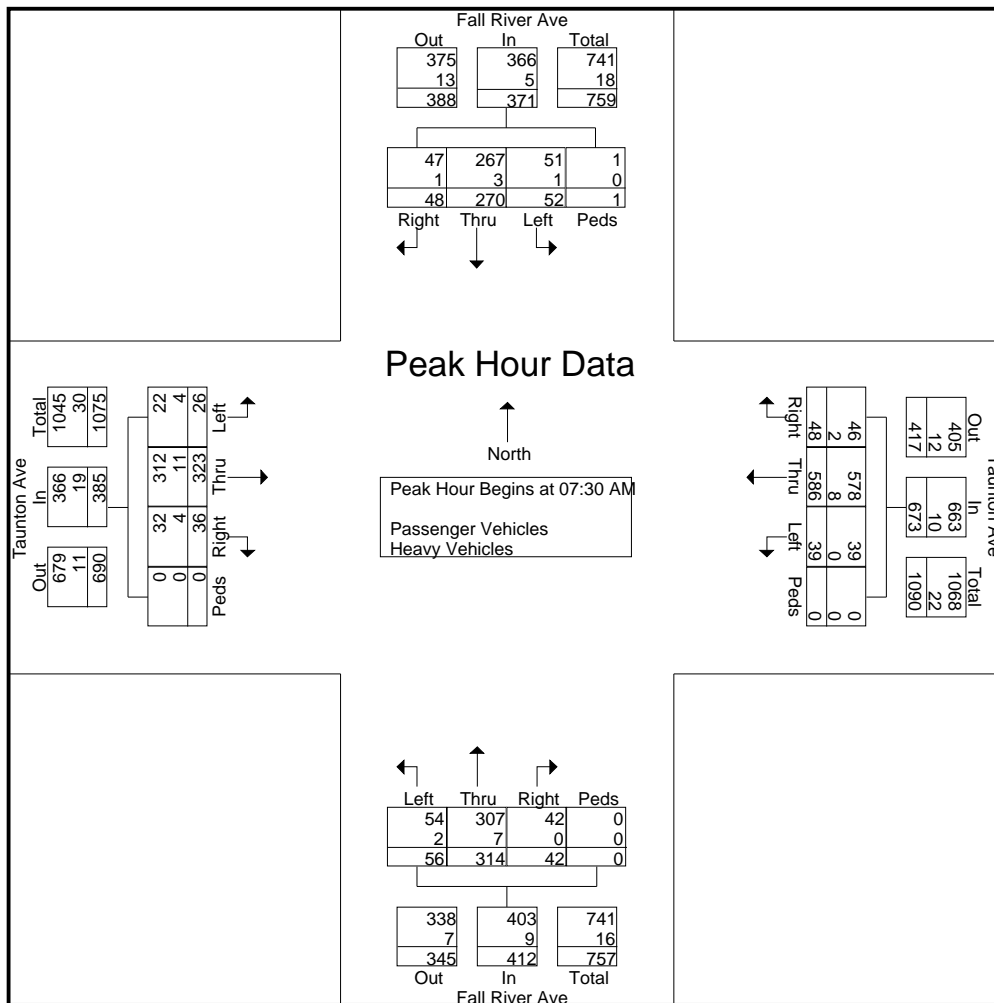


**BETA Group, Inc.**  
701 George Washington Highway  
Lincoln, Rhode Island, 02865  
P:401.333.2382

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Location: Taunton Ave @ Fall River Ave  
Weather: Sunny 70's

File Name : 7667 Taunton Ave @ Fall River Ave  
Site Code : 00766701  
Start Date : 6/16/2021  
Page No : 3

	Fall River Ave Southbound					Taunton Ave Westbound					Fall River Ave Northbound					Taunton Ave Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	4	58	12	0	74	12	150	12	0	174	13	79	17	0	109	12	89	6	0	107	464
07:45 AM	17	85	11	0	113	9	171	12	0	192	8	91	10	0	109	8	66	9	0	83	497
08:00 AM	10	54	16	1	81	15	139	2	0	156	11	75	18	0	104	6	76	6	0	88	429
08:15 AM	17	73	13	0	103	12	126	13	0	151	10	69	11	0	90	10	92	5	0	107	451
Total Volume	48	270	52	1	371	48	586	39	0	673	42	314	56	0	412	36	323	26	0	385	1841
% App. Total	12.9	72.8	14	0.3		7.1	87.1	5.8	0		10.2	76.2	13.6	0		9.4	83.9	6.8	0		
PHF	.706	.794	.813	.250	.821	.800	.857	.750	.000	.876	.808	.863	.778	.000	.945	.750	.878	.722	.000	.900	.926
Passenger Vehicles	47	267	51	1	366	46	578	39	0	663	42	307	54	0	403	32	312	22	0	366	1798
% Passenger Vehicles	97.9	98.9	98.1	100	98.7	95.8	98.6	100	0	98.5	100	97.8	96.4	0	97.8	88.9	96.6	84.6	0	95.1	97.7
Heavy Vehicles	1	3	1	0	5	2	8	0	0	10	0	7	2	0	9	4	11	4	0	19	43
% Heavy Vehicles	2.1	1.1	1.9	0	1.3	4.2	1.4	0	0	1.5	0	2.2	3.6	0	2.2	11.1	3.4	15.4	0	4.9	2.3

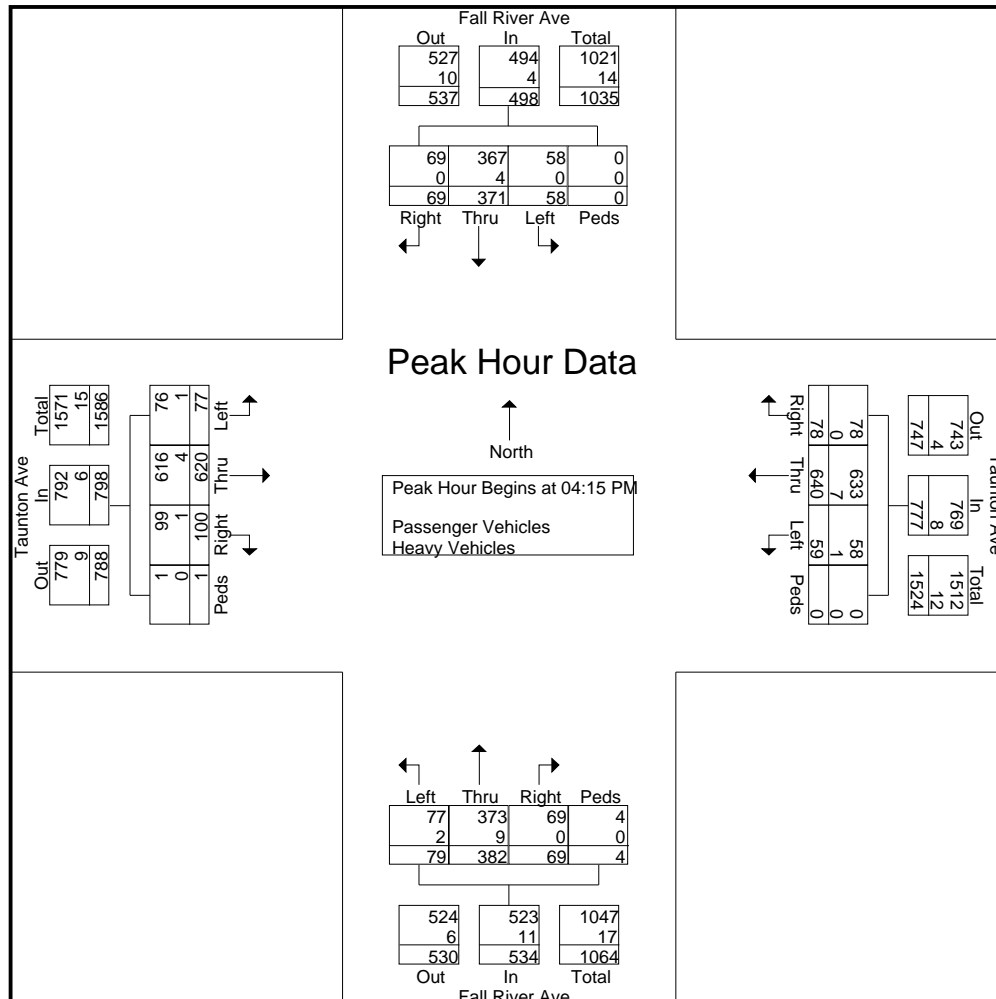


**BETA Group, Inc.**  
701 George Washington Highway  
Lincoln, Rhode Island, 02865  
P:401.333.2382

Project: Proposed Commercial Redevelopment  
Town/City: Seekonk, MA  
Location: Taunton Ave @ Fall River Ave  
Weather: Sunny 70's

File Name : 7667 Taunton Ave @ Fall River Ave  
Site Code : 00766701  
Start Date : 6/16/2021  
Page No : 4

	Fall River Ave Southbound					Taunton Ave Westbound					Fall River Ave Northbound					Taunton Ave Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:15 PM																					
04:15 PM	16	93	13	0	122	16	139	13	0	168	18	104	18	0	140	24	169	21	1	215	645
04:30 PM	21	91	13	0	125	16	170	16	0	202	16	104	22	1	143	27	148	17	0	192	662
04:45 PM	15	85	17	0	117	26	153	15	0	194	14	96	20	3	133	18	159	16	0	193	637
05:00 PM	17	102	15	0	134	20	178	15	0	213	21	78	19	0	118	31	144	23	0	198	663
Total Volume	69	371	58	0	498	78	640	59	0	777	69	382	79	4	534	100	620	77	1	798	2607
% App. Total	13.9	74.5	11.6	0		10	82.4	7.6	0		12.9	71.5	14.8	0.7		12.5	77.7	9.6	0.1		
PHF	.821	.909	.853	.000	.929	.750	.899	.922	.000	.912	.821	.918	.898	.333	.934	.806	.917	.837	.250	.928	.983
Passenger Vehicles	69	367	58	0	494	78	633	58	0	769	69	373	77	4	523	99	616	76	1	792	2578
% Passenger Vehicles	100	98.9	100	0	99.2	100	98.9	98.3	0	99.0	100	97.6	97.5	100	97.9	99.0	99.4	98.7	100	99.2	98.9
Heavy Vehicles	0	4	0	0	4	0	7	1	0	8	0	9	2	0	11	1	4	1	0	6	29
% Heavy Vehicles	0	1.1	0	0	0.8	0	1.1	1.7	0	1.0	0	2.4	2.5	0	2.1	1.0	0.6	1.3	0	0.8	1.1



## APPENDIX B – Traffic Crash Data

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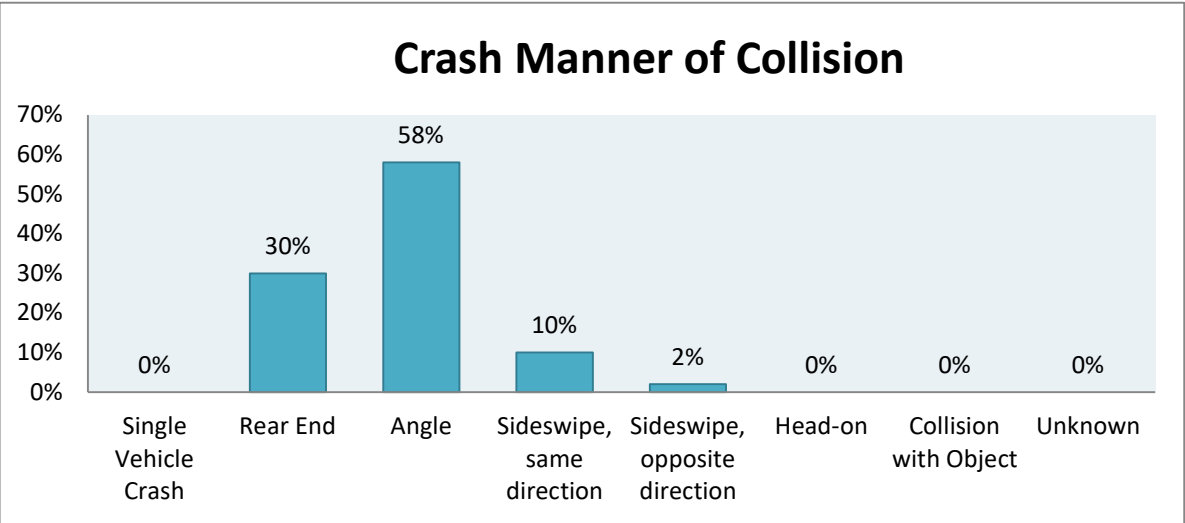
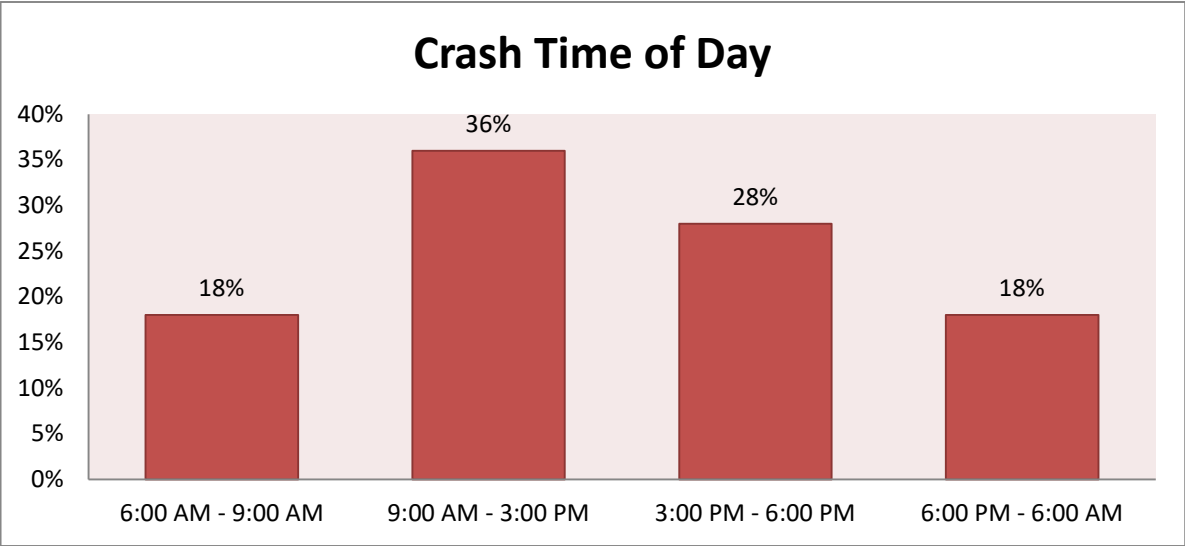
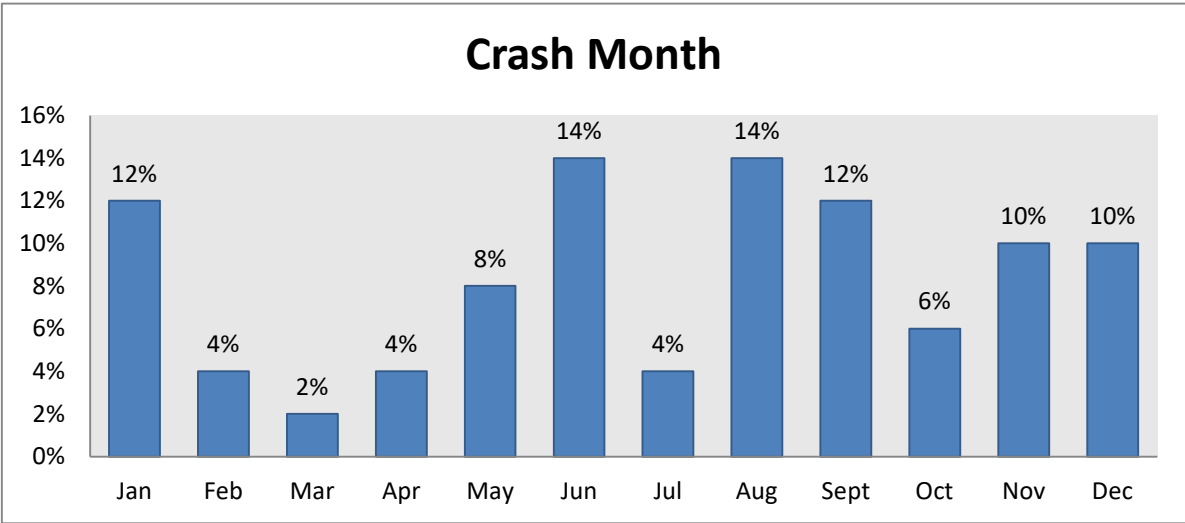
**January 2016 through December 2018**

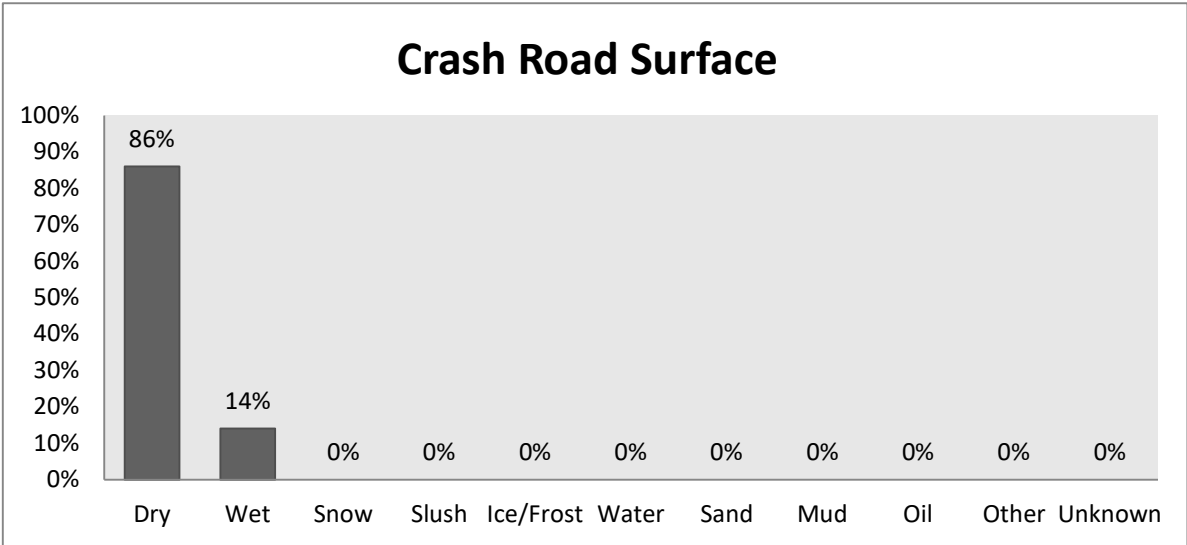
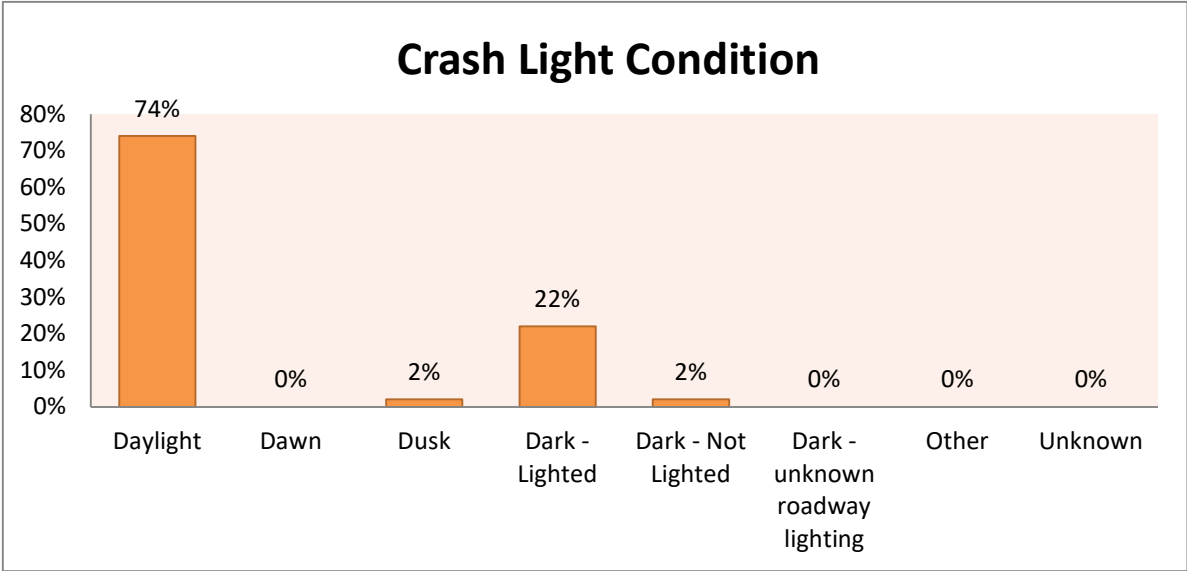
Taunton Avenue (Route 44) at Fall River Avenue (Route 114A)

**Taunton Ave at Fall River Ave**

	2016	2017	2018	Total	Percent
<b>Collision Type</b>					
Rear End	6	5	4	15	30%
Angle	11	10	8	29	58%
Head-On	0	0	0	0	0%
Pedestrian	0	0	0	0	0%
Sideswipe, Same Direction	1	3	1	5	10%
Sideswipe, Opposite Direction	0	0	1	1	2%
Rear-to-Side	0	0	0	0	0%
Collision with Object	0	0	0	0	0%
Collision with Deer	0	0	0	0	0%
Other	0	0	0	0	0%
Unknown	0	0	0	0	0%
<b>Crash Severity</b>					
Property	12	16	8	36	72%
Injury	6	2	6	14	28%
<b>Light Condition</b>					
Daylight	15	11	11	37	74%
Dawn	0	0	0	0	0%
Dusk	1	0	0	1	2%
Dark - Lighted	2	7	2	11	22%
Dark - Not Lighted	0	0	1	1	2%
Dark - Unknown Lighting	0	0	0	0	0%
<b>Road Condition</b>					
Dry	17	15	11	43	86%
Wet	1	3	3	7	14%
Snow	0	0	0	0	0%
Other	0	0	0	0	0%
Unknown	0	0	0	0	0%
<b>Hour of Day</b>					
6:00 AM - 9:00 AM	4	2	3	9	18%
9:00 AM - 3:00 PM	7	4	7	18	36%
3:00 PM - 6:00 PM	5	7	2	14	28%
6:00 PM - 6:00 AM	2	5	2	9	18%
Total Crashes:	18	18	14	50	

Crash Data Summary Charts





# APPENDIX C – Trip Generation

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## **ITE Trip Generation Summary**

## **Site Trip Distribution**

## **ITE Land Use Code**

ITE Land Use Code 945 – Gasoline/Service Station with Convenience Market

**C**

---

**ITE Trip Generation Summary**

## Trip Generation Summary

### Summary;

	<u>Description</u>	<u>Enter</u>	<u>Exit</u>	<u>Total</u>
<u>Weekday AM Peak Hour</u>				
ITE Land Use Code 945	Gasoline/Service Station with Convenience Market	50	50	100
<u>Weekday PM Peak Hour</u>				
ITE Land Use Code 945	Gasoline/Service Station with Convenience Market	55	55	110

## Calculations;

ITE Land Use Code 945

Gasoline/Service Station with Convenience Market

(8 VFP)

Independent Variable (X) = Vehicle Fueling Positions (VFP)

X = 8

AM Peak*Directional Distribution:*

51% Entering

49% Exiting

T = 12.47 (X)

Enter: 50

T = 12.47 8

Exit: 50

T = 100

Total: 100

PM Peak*Directional Distribution:*

51% Entering

49% Exiting

T = 13.99 (X)

Enter: 55

T = 13.99 8

Exit: 55

T = 110

Total: 110

C

---

**Site Trip Distribution**



Fall River  
Avenue

20



5

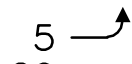


5



Route  
44

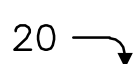
5  
20



25



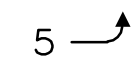
20



25



5  
20



5



Route  
114A

**SITE**

Site Trips:

Enter: 50  
Exit: 50  
Total: 100



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WEEKDAY TRAFFIC DISTRIBUTION  
AM PEAK HOUR BUILD

PROPOSED COMMERCIAL REDEVELOPMENT  
SEEKONK, MASSACHUSETTS



Fall River  
Avenue

20



5



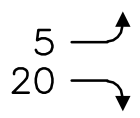
5



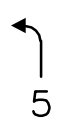
25



5  
20



5



Route  
114A

Taunton  
Avenue

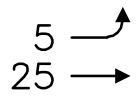
25



30



5  
25



Route  
44

**SITE**

Site Trips:

Enter: 55

Exit: 55

Total: 110



[www.BETA-Inc.com](http://www.BETA-Inc.com)

WEEKDAY TRAFFIC DISTRIBUTION  
PM PEAK HOUR BUILD

PROPOSED COMMERCIAL REDEVELOPMENT  
SEEKONK, MASSACHUSETTS

# C

---

## **ITE Land Use Code**

ITE Land Use Code 945 – Gasoline/Service Station with Convenience Market

## Land Use: 945

### Gasoline/Service Station with Convenience Market

#### Description

This land use includes gasoline/service stations with convenience markets where the primary business is the fueling of motor vehicles. These service stations may also have ancillary facilities for servicing and repairing motor vehicles and may have a car wash. Some commonly sold convenience items are newspapers, coffee or other beverages, and snack items that are usually consumed in the car. The sites included in this land use category have the following two specific characteristics:

- The gross floor area of the convenience market is between 2,000 and 3,000 gross square feet
- The number of vehicle fueling positions is at least 10

Convenience market (Land Use 851), convenience market with gasoline pumps (Land Use 853), gasoline/service station (Land Use 944), truck stop (Land Use 950), and super convenience market/gas station (Land Use 960) are related uses.

#### Additional Data

The independent variable, vehicle fueling positions, is defined as the maximum number of vehicles that can be fueled simultaneously.

Gasoline/service stations in this land use include “pay-at-the-pump” and traditional fueling stations.

Time-of-day distribution data for this land use are presented in Appendix A. For the five general urban/suburban sites with data, the overall highest vehicle volumes during the AM and PM on a weekday were counted between 7:30 and 8:30 a.m. and 3:45 and 4:45 p.m., respectively.

A multi-variable regression analysis based on both the convenience market gross floor area (GFA) and the number of vehicle fueling positions (VFP) produced a series of fitted curve equations. The equations are in the form of:

$$\text{Vehicle Trips} = [(\text{VFP Factor}) \times (\text{Number of VFP})] + [(\text{GFA Factor}) \times (\text{GFA})] + (\text{Constant})$$

The values for the VFP factor, GFA factor, and constant are presented in the following table for each time period for which a fitted curve equation could produce an R<sup>2</sup> value of at least 0.50.

Time Period	VFP Factor	GFA Factor	Constant	R <sup>2</sup>
Weekday, AM Peak Hour of Generator	15.6	108	-295	0.62
Weekday, PM Peak Hour of Generator	Not Available			
Weekday, AM Peak Hour of Adjacent Street	15.7	97.3	-284	0.59
Weekday, PM Peak Hour of Adjacent Street	Not Available			

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in Alberta (CA), California, Connecticut, Florida, Indiana, Iowa, Kentucky, Minnesota, New Hampshire, New Jersey, Texas, and Wisconsin.

#### **Source Numbers**

245, 340, 350, 385, 440, 617, 813, 864, 865, 883, 888, 954, 960, 977

## Gasoline/Service Station With Convenience Market (945)

Vehicle Trip Ends vs: Vehicle Fueling Positions  
On a: Weekday,  
Peak Hour of Adjacent Street Traffic,  
One Hour Between 7 and 9 a.m.

Setting/Location: General Urban/Suburban

Number of Studies: 14

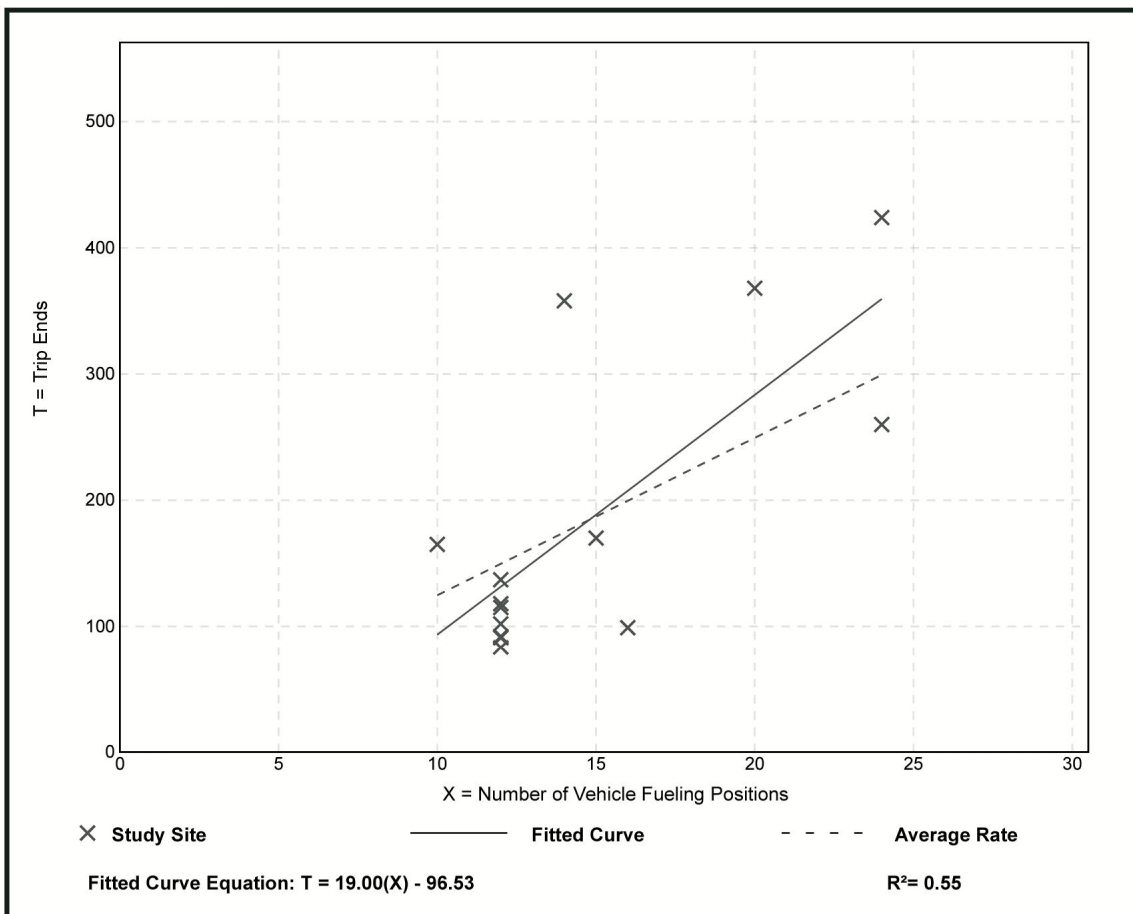
Avg. Num. of Vehicle Fueling Positions: 15

Directional Distribution: 51% entering, 49% exiting

### Vehicle Trip Generation per Vehicle Fueling Position

Average Rate	Range of Rates	Standard Deviation
12.47	6.19 - 25.57	5.56

### Data Plot and Equation



## Gasoline/Service Station With Convenience Market (945)

**Vehicle Trip Ends vs: Vehicle Fueling Positions**

**On a: Weekday,  
Peak Hour of Adjacent Street Traffic,  
One Hour Between 4 and 6 p.m.**

**Setting/Location: General Urban/Suburban**

Number of Studies: 16

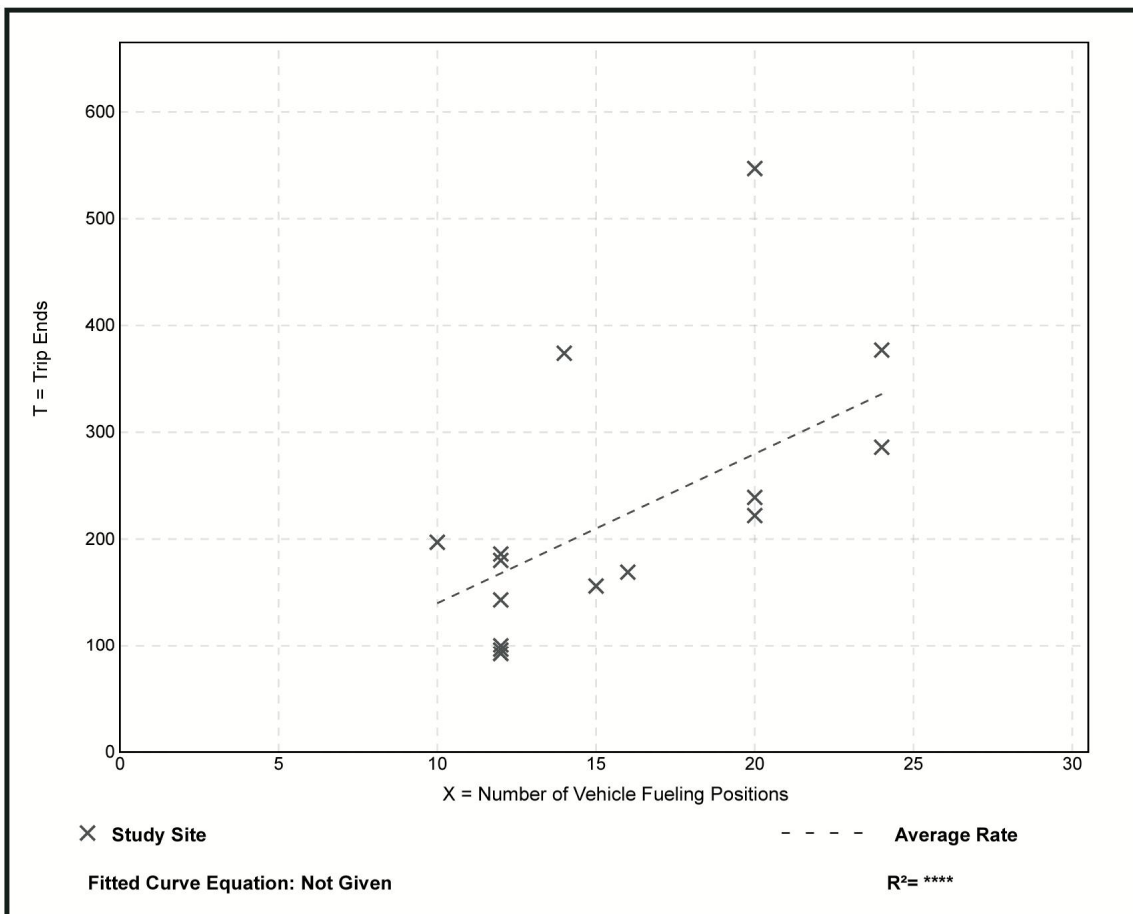
Avg. Num. of Vehicle Fueling Positions: 15

Directional Distribution: 51% entering, 49% exiting

### Vehicle Trip Generation per Vehicle Fueling Position

Average Rate	Range of Rates	Standard Deviation
13.99	7.67 - 27.35	6.18

### Data Plot and Equation



## APPENDIX D – Operational Analysis

---

### Existing Conditions

Taunton Avenue (Route 44) at Fall River Avenue (Route 114A)

### Future Build Conditions

Taunton Avenue (Route 44) at Fall River Avenue (Route 114A)

Taunton Avenue (Route 44) at Site Driveway

Fall River Avenue (Route 114A) at Site Driveway

D

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**Existing Weekday AM / PM Peak Hour**

Taunton Avenue (Route 44) at Fall River Avenue (Route 114A)

Taunton Avenue (Route 44) at Fall River Avenue (Route 114A)



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## Turning Movement Diagram

**Major Street:** Taunton Ave. (Route 44)

**Minor Street:** Fall River Ave. (Rte. 114A)

**City/Town:** Seekonk, MA

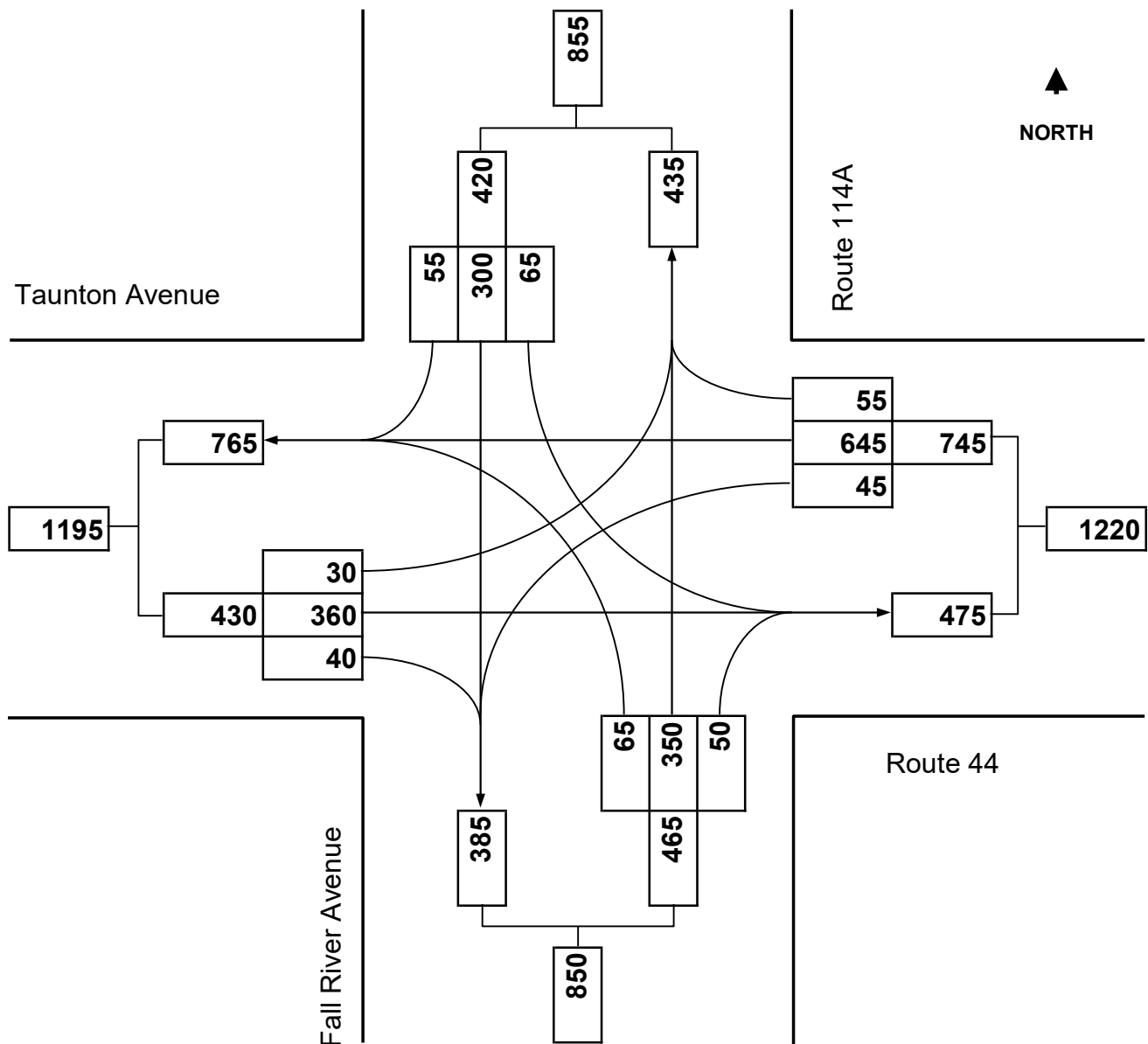
**Day of Week:** Weekday

**Reference No.:** 7667

**Peak Period:** 7:30 AM - 8:30 AM

**Existing:** AM Peak Hour



















**Future:** n/a



Proposed Commercial Redevelopment  
Taunton Avenue at Fall River Avenue

Seekonk, MA

07/12/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	360	40	45	645	55	65	350	50	65	300	55
Future Volume (vph)	30	360	40	45	645	55	65	350	50	65	300	55
Satd. Flow (prot)	0	3367	0	0	3519	0	1736	1832	0	1770	1835	0
Flt Permitted		0.873			0.902		0.449			0.391		
Satd. Flow (perm)	0	2948	0	0	3183	0	820	1832	0	728	1835	0
Satd. Flow (RTOR)		22			17			15			19	
Lane Group Flow (vph)	0	462	0	0	801	0	70	430	0	70	382	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Total Split (s)	30.0	30.0		30.0	30.0		30.0	30.0		30.0	30.0	
Total Lost Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Act Effect Green (s)		18.7			18.7		17.0	17.0		17.0	17.0	
Actuated g/C Ratio		0.40			0.40		0.37	0.37		0.37	0.37	
v/c Ratio		0.38			0.62		0.23	0.63		0.26	0.56	
Control Delay		11.0			13.8		13.4	17.0		14.2	15.2	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		11.0			13.8		13.4	17.0		14.2	15.2	
LOS		B			B		B	B		B	B	
Approach Delay		11.0			13.8			16.5			15.0	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)		41			82		13	88		13	75	
Queue Length 95th (ft)		86			162		40	186		41	159	
Internal Link Dist (ft)		1093			728			389			188	
Turn Bay Length (ft)							200					
Base Capacity (vph)		1712			1845		473	1064		420	1067	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.27			0.43		0.15	0.40		0.17	0.36	

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 46.4

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.63

Intersection Signal Delay: 14.1

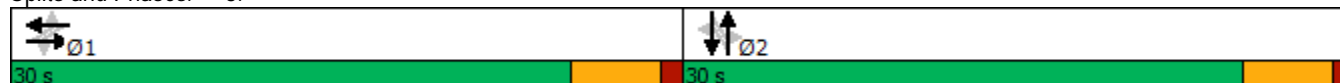
Intersection LOS: B

Intersection Capacity Utilization 76.1%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 3:





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## Turning Movement Diagram

**Major Street:** Taunton Ave. (Route 44)

**Minor Street:** Fall River Ave. (Rte. 114A)

**City/Town:** Seekonk, MA

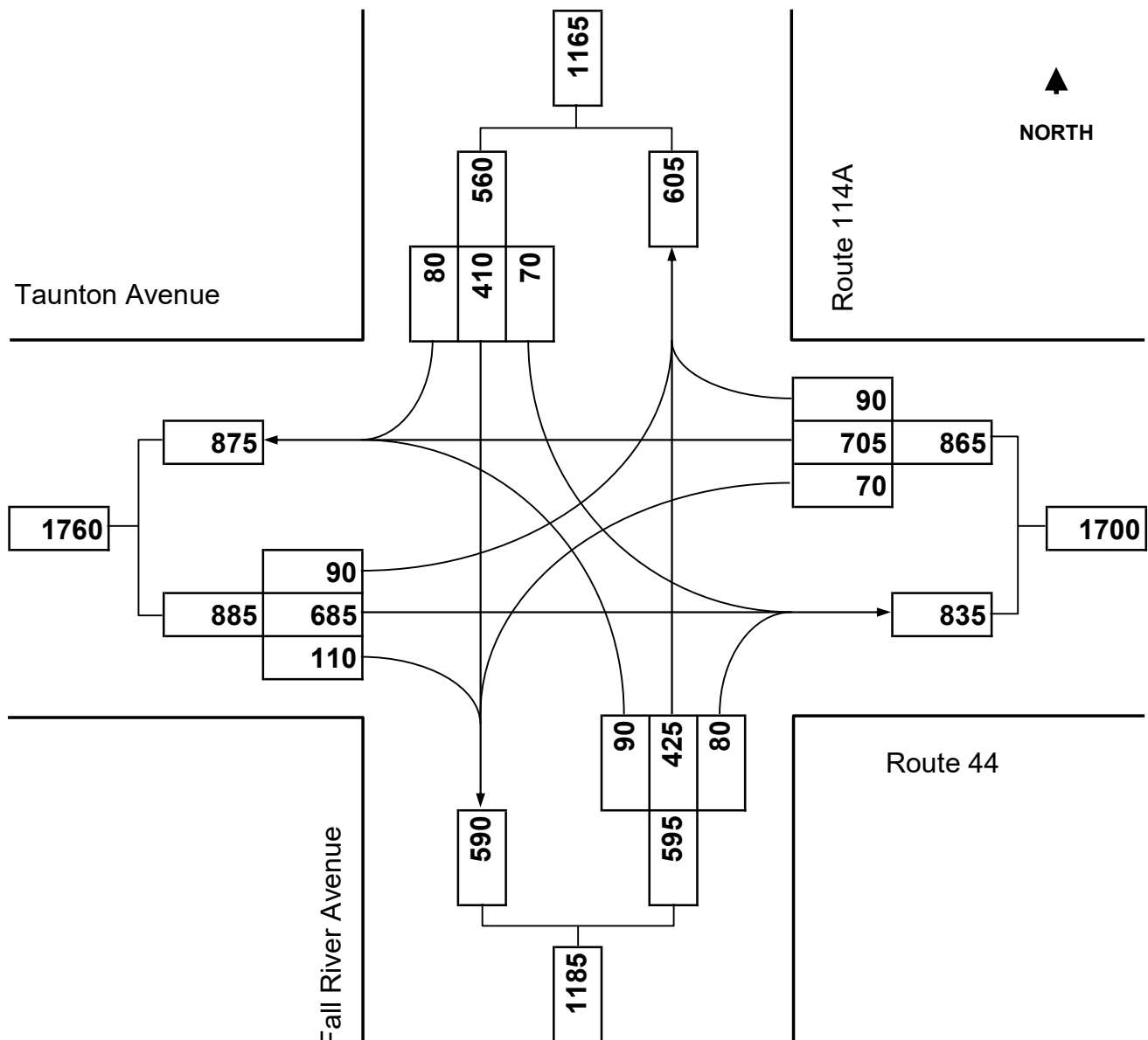
**Day of Week:** Weekday

**Reference No.:** 7667

**Peak Period:** 4:30 PM - 5:30 PM

**Existing:** PM Peak Hour



















**Future:** n/a



Proposed Commercial Redevelopment  
Taunton Avenue at Fall River Avenue

Seekonk, MA

07/12/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	685	110	70	705	90	90	425	80	70	410	80
Future Volume (vph)	90	685	110	70	705	90	90	425	80	70	410	80
Satd. Flow (prot)	0	3489	0	0	3504	0	1770	1824	0	1805	1837	0
Flt Permitted		0.740			0.796		0.275			0.257		
Satd. Flow (perm)	0	2595	0	0	2800	0	512	1824	0	488	1837	0
Satd. Flow (RTOR)		32			25			17			18	
Lane Group Flow (vph)	0	903	0	0	882	0	92	516	0	71	500	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Total Split (s)	35.0	35.0		35.0	35.0		30.0	30.0		30.0	30.0	
Total Lost Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Act Effect Green (s)		26.3			26.3		20.9	20.9		20.9	20.9	
Actuated g/C Ratio		0.46			0.46		0.36	0.36		0.36	0.36	
v/c Ratio		0.75			0.68		0.50	0.77		0.40	0.74	
Control Delay		17.8			15.8		26.1	25.2		22.7	23.5	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		17.8			15.8		26.1	25.2		22.7	23.5	
LOS		B			B		C	C		C	C	
Approach Delay		17.8			15.8			25.3			23.4	
Approach LOS		B			B			C			C	
Queue Length 50th (ft)		140			131		27	163		20	156	
Queue Length 95th (ft)		210			193		70	#272		55	258	
Internal Link Dist (ft)		1093			728			389			188	
Turn Bay Length (ft)							200					
Base Capacity (vph)		1427			1535		232	837		221	843	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.63			0.57		0.40	0.62		0.32	0.59	

Intersection Summary

Cycle Length: 65

Actuated Cycle Length: 57.6

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 19.8

Intersection LOS: B

Intersection Capacity Utilization 98.3%

ICU Level of Service F

Analysis Period (min) 15

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3:



D

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**Future 2024 Weekday AM / PM Peak Hour**

Taunton Avenue (Route 44) at Fall River Avenue (Route 114A)

Taunton Avenue (Route 44) at Site Driveway

Fall River Avenue (Route 114A) at Site Driveway

Taunton Avenue (Route 44) at Fall River Avenue (Route 114A)



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## Turning Movement Diagram

**Major Street:** Taunton Ave. (Route 44)

**Minor Street:** Fall River Ave. (Rte. 114A)

**City/Town:** Seekonk, MA

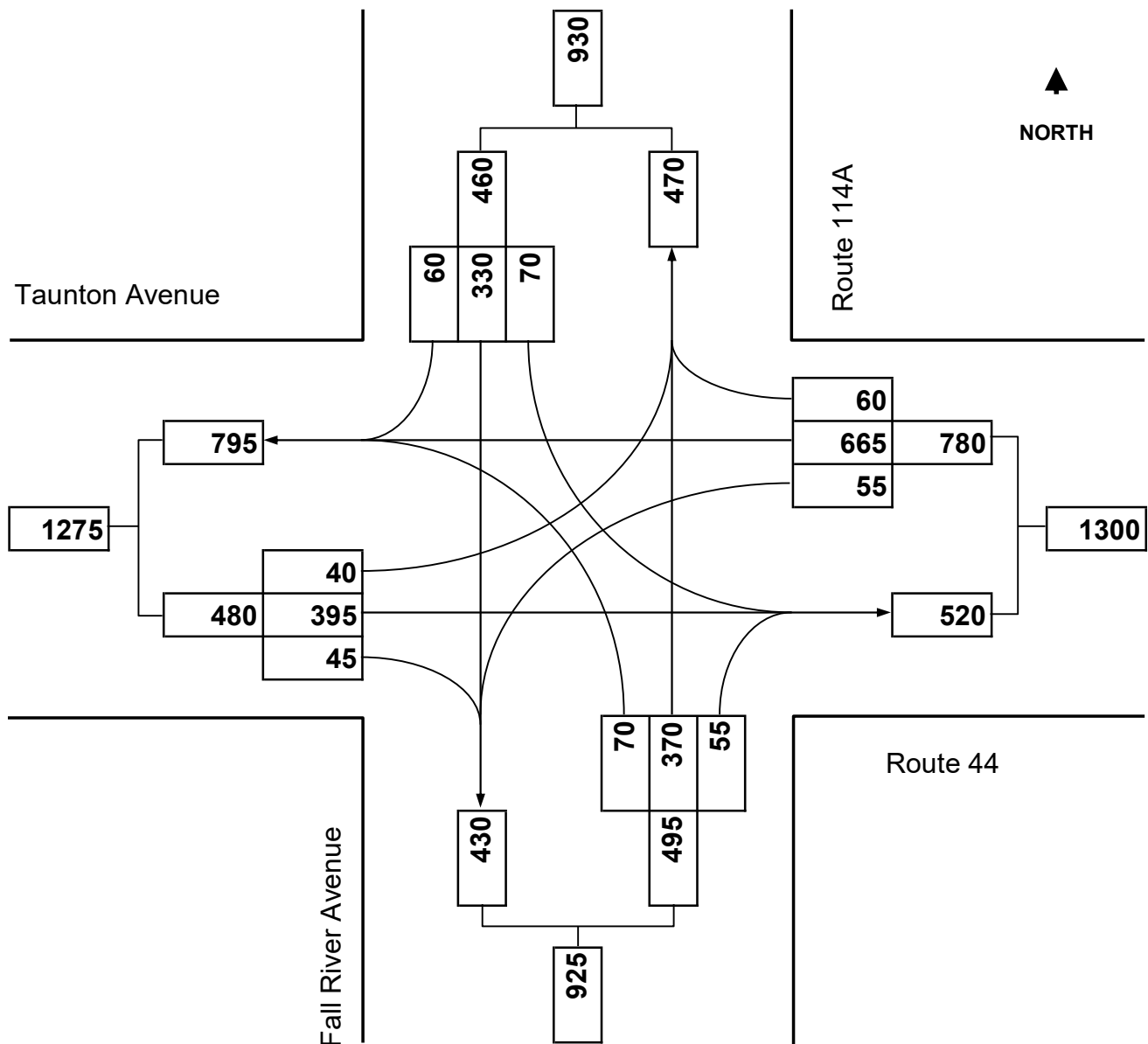
**Day of Week:** Weekday

**Reference No.:** 7667

**Peak Period:** AM Peak Hour

**Existing:** n/a



















**Future:** 2024 Build



Proposed Commercial Redevelopment  
Taunton Avenue at Fall River Avenue

Seekonk, MA

07/12/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	395	45	55	665	60	70	370	55	70	330	60
Future Volume (vph)	40	395	45	55	665	60	70	370	55	70	330	60
Satd. Flow (prot)	0	3358	0	0	3512	0	1736	1832	0	1770	1835	0
Flt Permitted		0.844			0.883		0.402			0.359		
Satd. Flow (perm)	0	2846	0	0	3113	0	734	1832	0	669	1835	0
Satd. Flow (RTOR)		22			18			15			19	
Lane Group Flow (vph)	0	516	0	0	839	0	75	457	0	75	420	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Total Split (s)	30.0	30.0		30.0	30.0		30.0	30.0		30.0	30.0	
Total Lost Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Act Effect Green (s)		19.6			19.6		18.0	18.0		18.0	18.0	
Actuated g/C Ratio		0.41			0.41		0.37	0.37		0.37	0.37	
v/c Ratio		0.44			0.66		0.27	0.66		0.30	0.61	
Control Delay		11.9			14.9		14.4	17.9		15.3	16.3	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		11.9			14.9		14.4	17.9		15.3	16.3	
LOS		B			B		B	B		B	B	
Approach Delay		11.9			14.9			17.4			16.2	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)		50			93		15	102		15	90	
Queue Length 95th (ft)		99			173		44	200		45	179	
Internal Link Dist (ft)		1093			728			389			188	
Turn Bay Length (ft)							200					
Base Capacity (vph)		1582			1727		405	1018		369	1022	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.33			0.49		0.19	0.45		0.20	0.41	

Intersection Summary

Cycle Length: 60

Actuated Cycle Length: 48.3

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 15.1

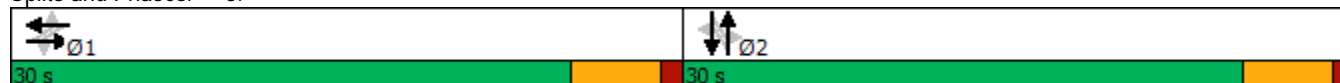
Intersection LOS: B

Intersection Capacity Utilization 79.9%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 3:





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## Turning Movement Diagram

**Major Street:** Taunton Ave. (Route 44)

**Minor Street:** Fall River Ave. (Rte. 114A)

**City/Town:** Seekonk, MA

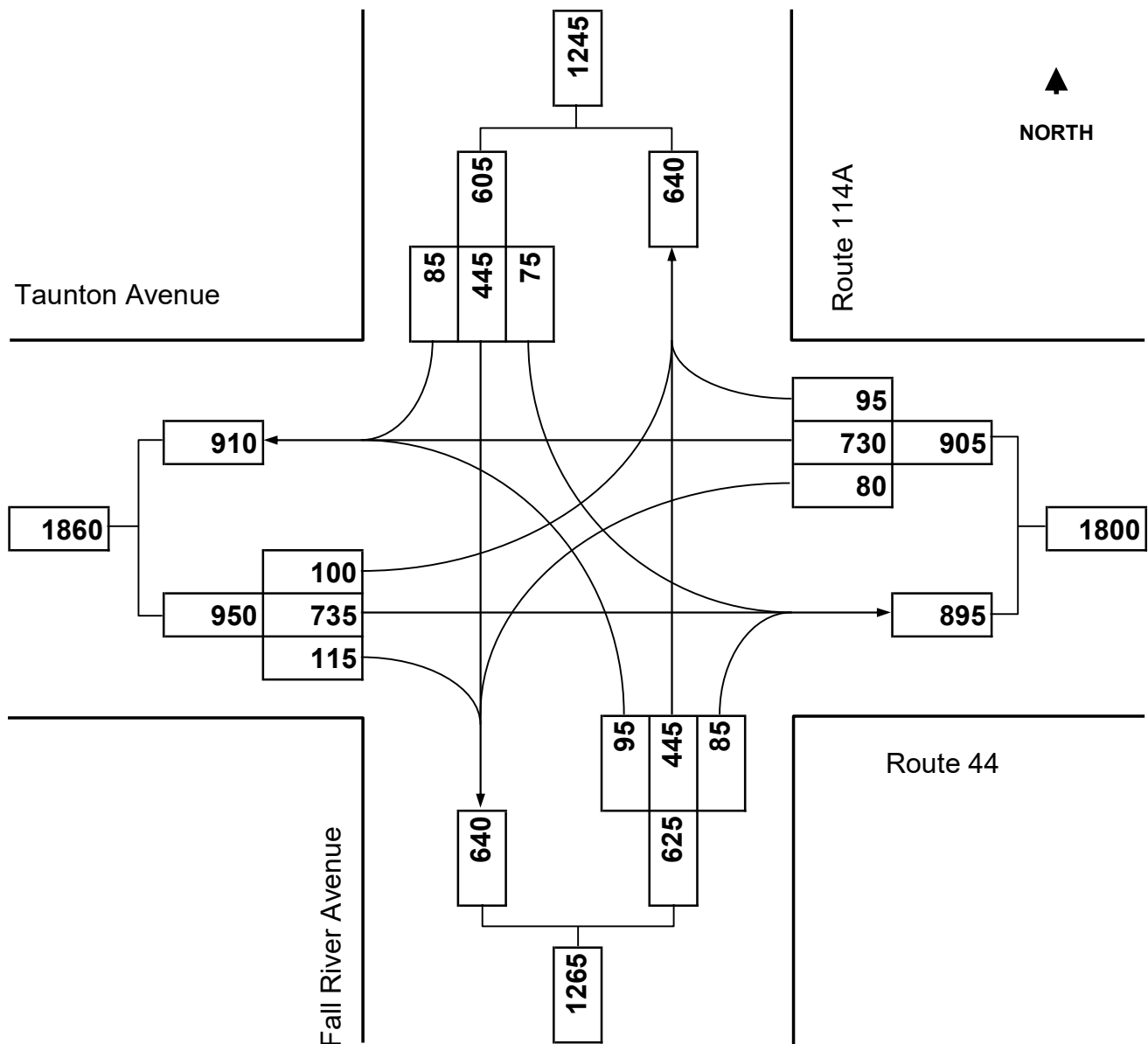
**Day of Week:** Weekday

**Reference No.:** 7667

**Peak Period:** PM Peak Hour

**Existing:** n/a































**Future:** 2024 Build



Proposed Commercial Redevelopment  
Taunton Avenue at Fall River Avenue

Seekonk, MA

07/12/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  		  	  		  	  	
Traffic Volume (vph)	100	735	115	80	730	95	95	445	85	75	445	85
Future Volume (vph)	100	735	115	80	730	95	95	445	85	75	445	85
Satd. Flow (prot)	0	3492	0	0	3504	0	1770	1824	0	1805	1839	0
Flt Permitted		0.704			0.740		0.222			0.222		
Satd. Flow (perm)	0	2471	0	0	2603	0	414	1824	0	422	1839	0
Satd. Flow (RTOR)		31			26			17			17	
Lane Group Flow (vph)	0	969	0	0	924	0	97	541	0	77	541	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Total Split (s)	35.0	35.0		35.0	35.0		30.0	30.0		30.0	30.0	
Total Lost Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Act Effect Green (s)		28.2			28.2		22.0	22.0		22.0	22.0	
Actuated g/C Ratio		0.47			0.47		0.36	0.36		0.36	0.36	
v/c Ratio		0.83			0.75		0.65	0.80		0.50	0.80	
Control Delay		22.1			18.1		40.2	27.8		28.7	27.3	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		22.1			18.1		40.2	27.8		28.7	27.3	
LOS		C			B		D	C		C	C	
Approach Delay		22.1			18.1			29.7			27.5	
Approach LOS		C			B			C			C	
Queue Length 50th (ft)		162			146		30	175		22	174	
Queue Length 95th (ft)		#281			217		#99	#324		#67	#322	
Internal Link Dist (ft)		1093			728			389			188	
Turn Bay Length (ft)							200					
Base Capacity (vph)		1268			1332		175	780		178	786	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.76			0.69		0.55	0.69		0.43	0.69	

Intersection Summary

Cycle Length: 65

Actuated Cycle Length: 60.3

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 23.5

Intersection LOS: C

Intersection Capacity Utilization 102.9%

ICU Level of Service G

Analysis Period (min) 15

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3:



Taunton Avenue (Route 44) at Site Driveway

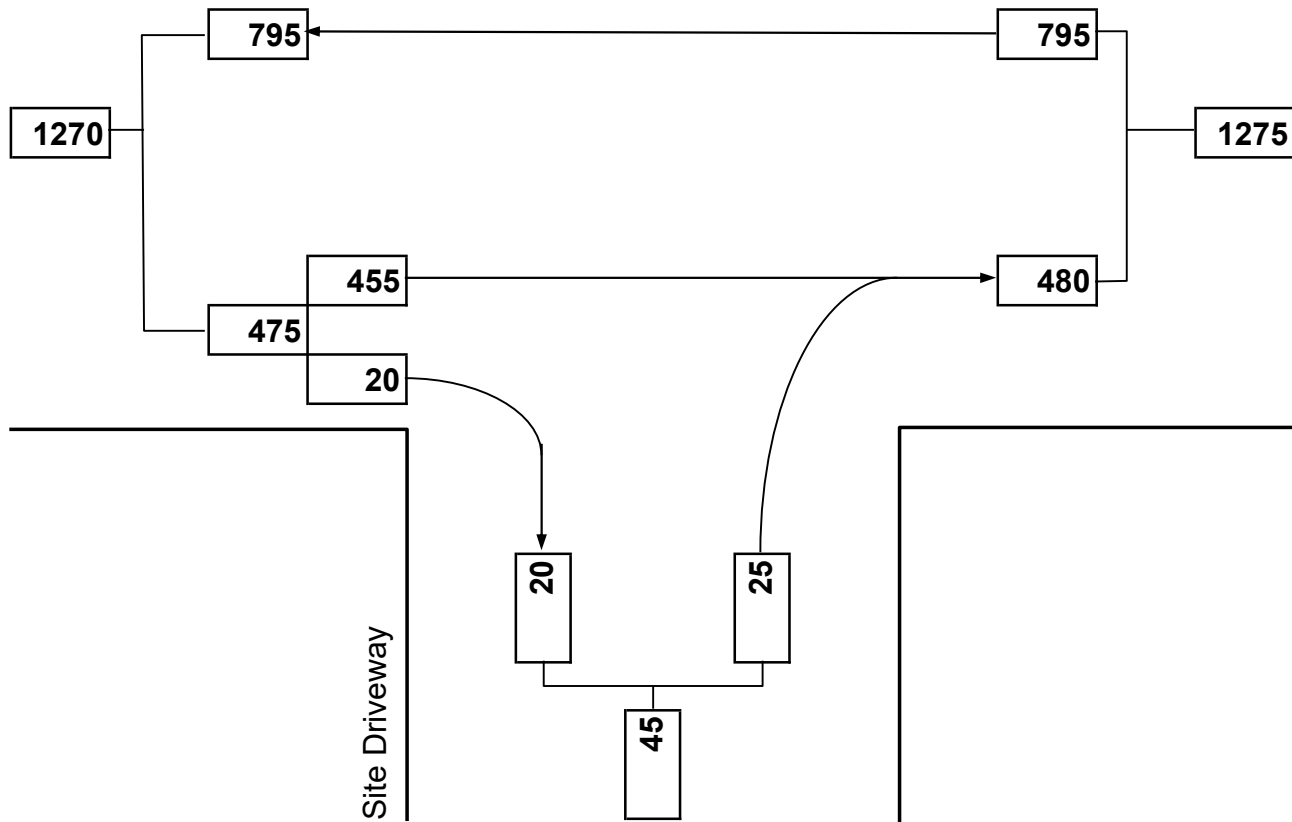
## Turning Movement Diagram

<b>Major Street:</b>	Taunton Ave. (Route 44)	<b>Minor Street:</b>	Site Driveway
<b>City/Town:</b>	Seekonk, MA	<b>Day of Week:</b>	Weekday
<b>Reference No.:</b>	7667	<b>Peak Period:</b>	AM Peak Hour
<b>Existing:</b>	n/a	<b>Future:</b>	2024 Build



NORTH

Taunton Avenue (Route 44)



Proposed Commercial Redevelopment  
Taunton Avenue at Site Driveway

Seekonk, MA  
07/12/2021

Intersection

Int Delay, s/veh 0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑		↑
Traffic Vol, veh/h	455	20	0	795	0	25
Future Vol, veh/h	455	20	0	795	0	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Free	-	None	-	Stop
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	0	0	2	0	0
Mvmt Flow	489	22	0	855	0	27

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	-	- 245
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	- 6.9
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	- 3.3
Pot Cap-1 Maneuver	-	0	0 - 762
Stage 1	-	0	0 -
Stage 2	-	0	0 -
Platoon blocked, %	-		-
Mov Cap-1 Maneuver	-	-	- 762
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9.9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	WBT
Capacity (veh/h)	762	-	-
HCM Lane V/C Ratio	0.035	-	-
HCM Control Delay (s)	9.9	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-



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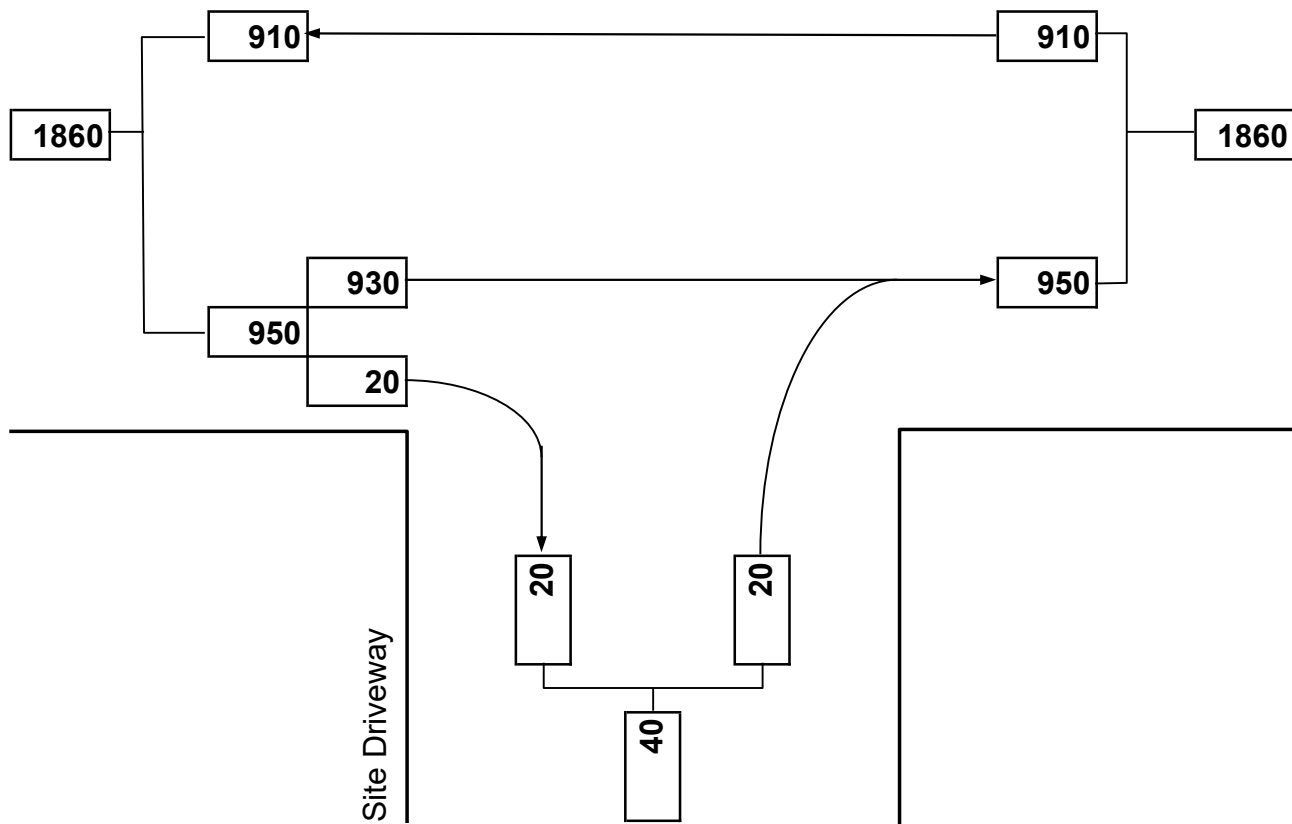
## Turning Movement Diagram

<b>Major Street:</b>	Taunton Ave. (Route 44)	<b>Minor Street:</b>	Site Driveway
<b>City/Town:</b>	Seekonk, MA	<b>Day of Week:</b>	Weekday
<b>Reference No.:</b>	7667	<b>Peak Period:</b>	PM Peak Hour
<b>Existing:</b>	n/a	<b>Future:</b>	2024 Build



NORTH

Taunton Avenue (Route 44)



Proposed Commercial Redevelopment  
Taunton Avenue at Site Driveway

Seekonk, MA  
07/12/2021

Intersection						
Int Delay, s/veh	0.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↱			↑↑		↱
Traffic Vol, veh/h	930	20	0	910	0	20
Future Vol, veh/h	930	20	0	910	0	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Free	-	None	-	Stop
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	0	0	2	0	0
Mvmt Flow	1000	22	0	978	0	22
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	-	500
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	-	0	0	-	0	522
Stage 1	-	0	0	-	0	-
Stage 2	-	0	0	-	0	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	-	522
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		12.2	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	EBT	WBT			
Capacity (veh/h)	522	-	-			
HCM Lane V/C Ratio	0.041	-	-			
HCM Control Delay (s)	12.2	-	-			
HCM Lane LOS	B	-	-			
HCM 95th %tile Q(veh)	0.1	-	-			

Fall River Avenue (Route 114A) at Site Driveway



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## Turning Movement Diagram

**Major Street:** Fall River Ave. (Rte. 114A)

**Minor Street:** Site Driveway

**City/Town:** Seekonk, MA

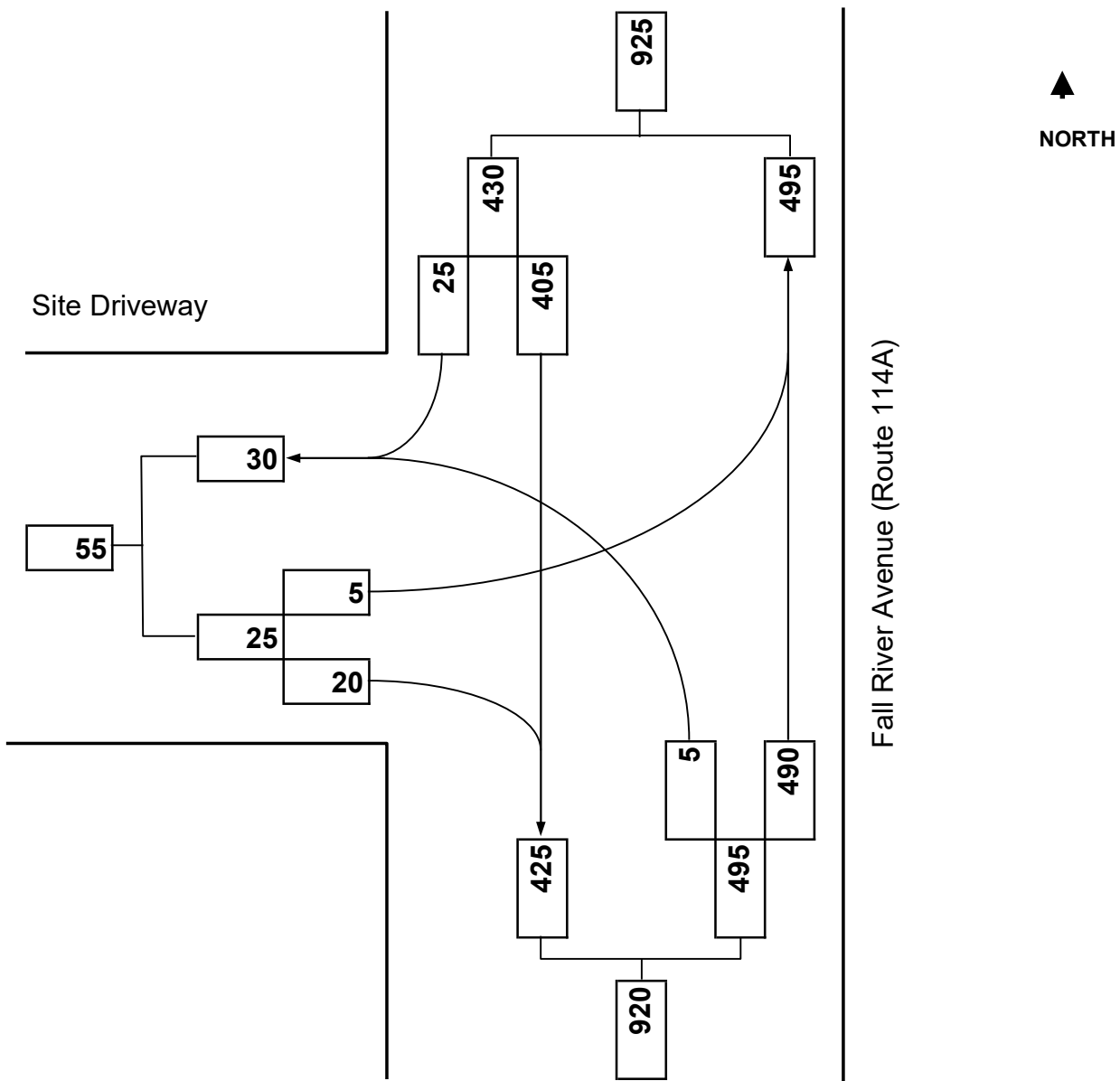
**Day of Week:** Weekday

**Reference No.:** 7667

**Peak Period:** AM Peak Hour





**Existing:** n/a

**Future:** 2024 Build



Proposed Commercial Redevelopment  
Fall River Avenue at Site Driveway

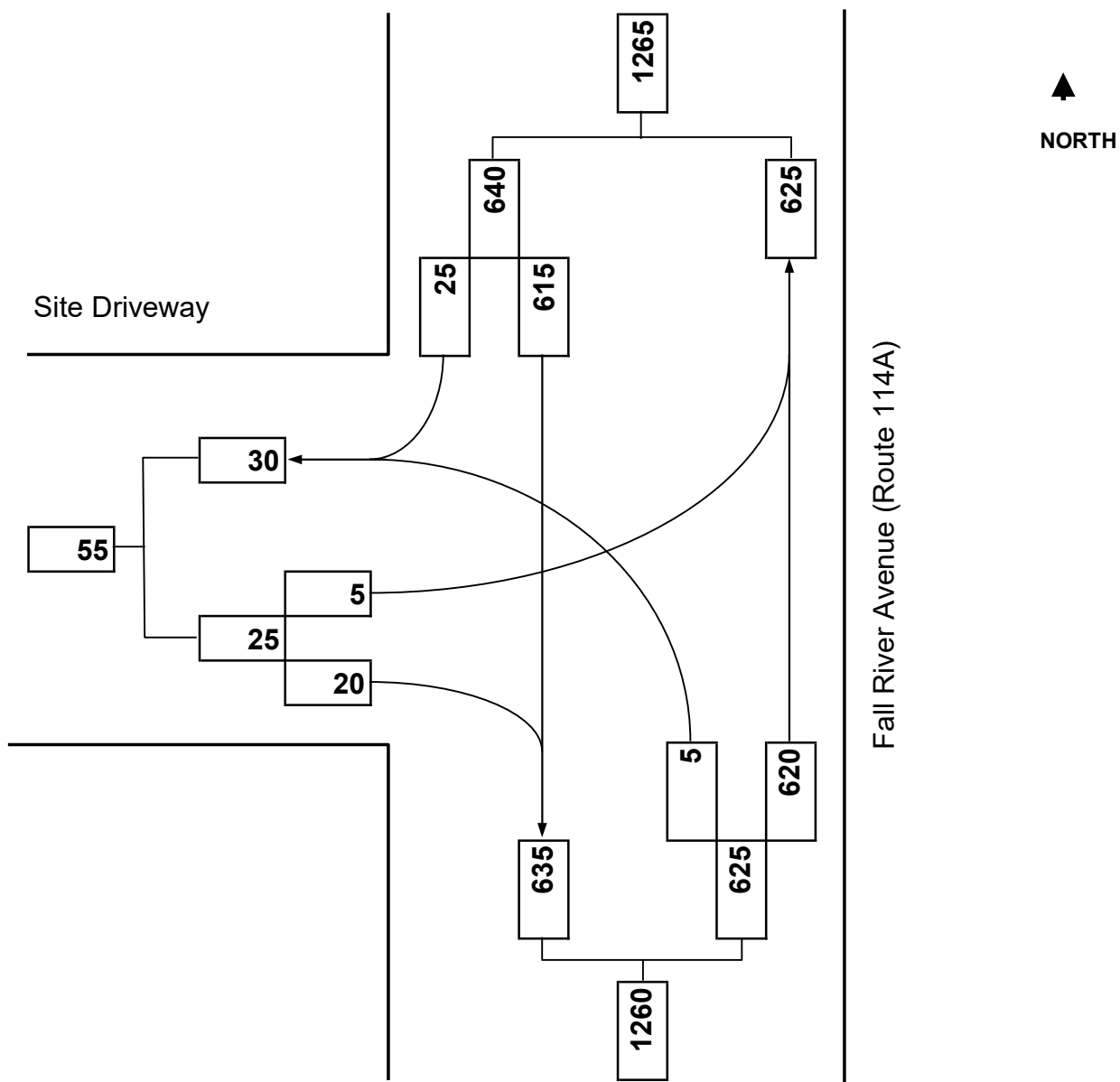
Seekonk, MA  
07/12/2021

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	20	5	490	405	25
Future Vol, veh/h	5	20	5	490	405	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	2	2	0
Mvmt Flow	5	22	5	527	435	27
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	723	449	462	0	-	0
Stage 1	449	-	-	-	-	-
Stage 2	274	-	-	-	-	-
Critical Hdwy	6.6	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	380	614	1110	-	-	-
Stage 1	647	-	-	-	-	-
Stage 2	753	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	378	614	1110	-	-	-
Mov Cap-2 Maneuver	378	-	-	-	-	-
Stage 1	643	-	-	-	-	-
Stage 2	753	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	11.9	0.1		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1110	-	546	-	-	
HCM Lane V/C Ratio	0.005	-	0.049	-	-	
HCM Control Delay (s)	8.3	0	11.9	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0	-	0.2	-	-	

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## Turning Movement Diagram

<b>Major Street:</b>	Fall River Ave. (Rte. 114A)	<b>Minor Street:</b>	Site Driveway
<b>City/Town:</b>	Seekonk, MA	<b>Day of Week:</b>	Weekday
<b>Reference No.:</b>	7667	<b>Peak Period:</b>	PM Peak Hour
<b>Existing:</b>	n/a	<b>Future:</b>	2024 Build



Proposed Commercial Redevelopment  
Fall River Avenue at Site Driveway

Seekonk, MA  
07/12/2021

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	20	5	620	615	25
Future Vol, veh/h	5	20	5	620	615	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	2	2	0
Mvmt Flow	5	22	5	667	661	27
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1019	675	688	0	-	0
Stage 1	675	-	-	-	-	-
Stage 2	344	-	-	-	-	-
Critical Hdwy	6.6	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	250	457	916	-	-	-
Stage 1	510	-	-	-	-	-
Stage 2	695	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	248	457	916	-	-	-
Mov Cap-2 Maneuver	248	-	-	-	-	-
Stage 1	505	-	-	-	-	-
Stage 2	695	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	14.9	0.1		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	916	-	391	-	-	
HCM Lane V/C Ratio	0.006	-	0.069	-	-	
HCM Control Delay (s)	9	0	14.9	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0	-	0.2	-	-	